Pests

AND THEIR CONTROL

1947
SEPTEMBER
VOL. 15, NO. 9

ORGAN OF THE PEST CONTROL INDUSTRY

Exterminators
Fumigators
Termite Control Operators
Entomologists
Insecticide and Supply Mfgrs.

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TRADE MARK

"10 68" - Successor to DDT
"EXTANE" - Exclusive activator

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5 Gallons (can)	9.00	2.60 per gal.
50 Gallons (drum)	87.50	2.40 per gal.

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- Prime-less Pump
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- 5-hour Gas Tank
- Insecticide Pressure Control
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- Solid-Open Top Section

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Pests

and Their CONTROL

Exterminators, Fumigators, Termite Control Operators, Entomologists, Insecticide and Supply Manufacturers

COOPERATING WITH NATIONAL PEST CONTROL ASSOCIATION

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RETURN POSTAGE GUARANTEED

EDITORIAL

Your Convention and Invitation

DURING THE entire history of our industry, there has never been a more opportune time nor a greater need for PCO's to learn and know the answers to the many questions of vital importance regarding their profession than today. PCO's face the extreme necessity of having a thorough knowledge of their business. The need for keeping abreast of the rapid development of new trends, new plans, new policies, new methods, new materials and techniques of operation is of vital importance.

Therefore, we cannot urge and emphasize too strongly the paramount necessity that every PCO plan to attend the coming Convention. Subjects and discussions of wide significance that concern every PCO will be scheduled at the Convention. This is your opportunity to plan now to attend. This is your CONVENTION, and INVITATION.

Termite Fumigant Demonstrations

We call your special attention to the full story published elsewhere in this issue of the recent semi-annual meeting of the California PCO's, because of the experiment in the control and eradication of dry-wood termites by the use of hydrocyanic acid and methyl bromide fumigants.

The new method of exterior complete sealing of buildings for fumigation, as developed by "Chet" Pencille, of Guaranteed Fumigation Co., of Los Angeles, contains great promise.

Improvement in termite control procedure is greatly needed, and we hope the line opened by the above experiment will be followed up and surely time and case histories will determine the value of the fumigant method.

"The Ant—All Work and No Hay"

An intensely interesting article, entitled, "The Ant—All Work and No Hay" recently appeared in the 1947 August Magazine Digest.

Science claims it has recently discovered that the ant does not lay up anything for winter use. Says the writer: "It is strange beyond comprehension, that so manifest a humbug as the ant has been able to fool so many nations and keep it up so many ages without being found out."

From Proverbs 6:6-7, we quote what the Bible has to say: "Go to the Ant, thou sluggard, consider her way and be wise. Which having no guide, overseer, or ruler, provideth her meat in the summer, and gathereth her food in the harvest."

Pest Control Operators who have had many years of experience in dealing with ants know that the Good Book is right and that ants do store their food.

"There Are No Flies in Idaho"

Anther interesting article appears in the same issue, entitled, "There Are No Flies in Idaho," giving an account of a recent state-wide all-out campaign against the housefly in Moscow. This campaign was carried out by the University of Idaho in a remarkable and successful way, using DDT. Results, no more houseflies in Moscow, Idaho.

Educating the Public

Educating the public so that they will look upon our profession as a legitimate business performing a needy and worthwhile service, is beginning to bear much fruit.

Through one form of advertising or another, the public is becoming more and more conscious of the importance of our service and is learning the vital need of our industry in performing the work we do for humanity.

Harold R. Corbett, a pest control operator in St. Thomas, Ontario, is another PCO who believes in advertising. The following news items appeared recently in the St. Thomas, Ont., newspaper, and illustrate Mr. Corbett's advertising technique:

SEE! EDUCATIONAL FILMS
PESTS & PEOPLE
Vegetables Enemies
FREE SHOWING
Tuesday, June 10th - 8 p. m.
Vocational School
Door Prizes for Adults and Students

Film on Vegetable Pests

The new educational film in natural colors recently released by the Dominion Department of Agriculture dealing with vegetable pests, is to be shown in the Vocational School auditorium next Tuesday evening, starting at eight o'clock, in behalf of St. Thomas and locality gardeners. This film and another entitled "Insect Enemies of Man" are being brought here by Harold R. Corbett, local pest control operator. The meeting will be open to the general public. Garden makers are especially invited to attend.

Grocery Winners

The three baskets of groceries donated as door prizes by Harold R. Corbett, local pest control operator, at the showing of films "Pest and People", held at the Vocational School last night, were won by Mr. Crawford, Gerry Fowler and Joanna Thwaites.

It goes without saying that advertising of this type is a great step in impressing the public with the vital need of our service. We commend this type of advertising. This is another excellent way to educate the public in engaging reliable PCO firms.

Notice of Judgment Under the Insecticide Act

The U. S. Department of Agriculture has recently issued (May, 1947) a list of notices of judgment under the Insecticide Act, which it would be well for all PCO's as well as manufacturers of pest control products to read.

Judgments were taken and fines assessed for misbranding (failure to specify percentage of inert substances, claims of too high a concentration of strength and too extravagant claims of killing powers).

The legitimate field for manufacture is so broad that it allows a wide scope of opportunity with splendid profit possibilities, and there is no need or excuse to falsify or deceive. Any such deviation from strict integrity on the part of any PCO or manufacturer tends to weaken confidence in our profession.

It is to be hoped that every person in any way con-

nected with the manufacture, sale and use of any pest control products, will take special care to meet both the letter and the spirit of the law, for he will in the long run profit most by so doing.

You'll Find Fun and Friendliness in Fascinating Philadelphia, NPCA's Convention City

To millions of people throughout the world, Philadelphia is known as America's favorite convention city, famous for its traditional hospitality and excellent accommodations—a delightful city to visit any time.

The finest of hotels and restaurants, unexcelled entertainment facilities, beautiful parks and storied historic shrines all assure you of a graciously pleasant stay. A mammoth modern Convention Hall is unsurpassed in its accomodations for meetings and exhibits.

As long ago as 1774, when the First Continental Congress met in Carpenters' Hall, Philadelphia was the choice for major meetings and conventions of all kinds. Since then five presidential conventions have been held in this city, the latest in 1940. Each year Philadelphia plays host to many hundreds of organizations and countless visitors from all over the world.

Readily accessible from every part of the country, Philadelphia is America's second largest port, national rail center served by the Pennsylvania, Reading and Baltimore and Ohio Railroads, and port of call for all major airlines.

The popularity of Philadelphia as a convention city is further increased by the ease with which even the first-time visitor finds his way about the city. During any weekend lull in Convention activities, you will appreciate the convenient local transit service, as you travel about enjoying some of the many things there are to do and see in Philadelphia and its beautiful suburbs.

Worshippers of all denominations will find the services of their choice at one of Philadelphia's 1,000 churches.

You are sure of a friendly welcome in Philadelphia. During your entire stay you will be impressed by the gracious, "glad-to-have-you" atmosphere in your hotel and everywhere you go. The Convention and Visitors Bureau of the Chamber of Commerce and Board of Trade of Philadelphia cordially invites you to come to Philadelphia—America's Great Convention City.

Booth Exhibits Will Afford An Ideal Opportunity For First Hand Information at the Fifteenth Annual NPCA Convention

Many chemical supply houses and firms doing business with the pest control industry are taking advantage of the booth exhibits that will make it possible for over 500 PCO's to discuss the value of chemical formulations and equipment as well as other problems. The Fifteenth Annual Convention of the National Pest Control Association will be held at the Hotel Bellevue Stratford, Philadelphia, Pa., on October 27-28-29.

We are informed that as of August 16th the following exhibitors will be pleased to show their products and equipment.

BOOTH EXHIBITORS

Gallant Termite Devices
Residex Corporation, Newark, N. J.
Lowell Manufacturing Company, Chicago, Ill.
Banta & Driscoll Company, Los Angeles, Calif.
H. D. Hudson Manufacturing Co., Chicago, Ill.
Cook Chemical Company, Kansas City, Mo.
Per-Mo Products Company, Kansas City 3, Mo.
Shaff Laboratories, Inc., Brooklyn, N. Y.
P. C. Cissel Company, Washington, D. C.
The Lofstrand Company Rockville, Maryland
Associated Chemists, Inc., Chicago, Ill.
American Cyanamid Company, New York, N. Y.
R. J. Prentiss & Company, Inc., New York, N. Y.
B. & D. A. Weisburger, New York, N. Y.
Pest Control Equipment Company, New York, N. Y.
Mine Safety Appliances Company, Pittsburgh, Pa.
Sprayer Corporation of America, Avanston, Ill.
Pennsylvania Salt Manufacturing Co., Philadelphia, Pa.

If there are others who desire to participate and have space, communicate immediately with William O. Buettner, Secretary NPCA, 3019 Ft. Hamilton Parkway, Brooklyn, 18, N. Y.

A. L. FORDE

Another PCO veteran passed away on August 13, at the Santa Monica Hospital due to a heart ailment.

It was in October of 1920 that A. L. Forde joined the Rose Exterminator Co., (then the Rose Rat Exterminator Co.) Los Angeles branch. At that time the offices were located in the Douglas Bldg. at 3rd and Spring Streets. Shortly thereafter Mr. Forde became a partner and general manager for Southern California and continued in this capacity until his death. Many old timers in Los Angeles still recall the famous Rose Rat trucks, which in those days were constructed in the form of a large rat, six feet long and approximately four feet high. Mr. Forde was truly one of the pioneers of the Pest Control Industry in the west, with large pest control jobs in progress from Santa Barbara to San Diego.

The need for a Pest Control Association was felt even in the early years. "A. L." was active in the establishment of the forerunner to all pest control associations, TERMITE & PEST CONTROL ASSOCIATES, or TAPCA as it was sometimes called, which was established in the late twenties.

In 1930 certificates were issued by the Dept. of Building and Safety of Los Angeles, to companies capable of making inspections and estimates on termite control. A. L. Forde had one of these early licenses.

From the very beginning of the National Pest Control Association and the California Pest Control Association, including the first conventions he was always very active. His prime interest was in progressive measures to promote the highest standards of scientific and ethical practices in the pest control industry.

Mr. Forde is survived by the widow, Mrs. Helen B. Forde, his son, co-owner of the Chemtox Company, a pest control organization in the Hawaiian Islands, Mrs. Grace Barker of Westwood, Calif., Mrs. Helen Woodward of Decatur, Georgia, his brother, the Rev. E. O. Forde of Los Angeles, and three grandsons, James Alexander and Richard Lincoln Forde of Honolulu and Paul Forde Barker of Westwood, Calif.

Mr. Forde was born in Limerick Ireland, January 26, 1891. He came to Canada in 1906 and was in the building supply business until he came to Calif. in 1920. From October 1920 to August 1947 he was continously in the Pest Control business with the ROSE EXTERMINATOR CO. in California, a period of twenty-seven years.

Mr. Forde had been in ill health for the past three years. However, he actively managed his business until one week before his death at which time he entered the Santa Monica Hospital.

We express our deep sympathies to the family.

Report On the Semi-Annual Convention of Pest Control Operators of California, Inc.

Clark Hotel, Los Angeles, California, July 28--August 2, 1947

By J. WILFRED GUNN in collaboration with
HUGH SMITH, BOB LOIBL JR. and C. W. PENCILLE

A NUMBER OF PCO's, notably Chet Pencille, Bob Loibl, Jr. Jesse Miller and Hugh Smith, all of the West Coast, have experimented with lethal fumigants for the control of dry wood termites.

In the fall of 1946 experiments were conducted by quite a number of PCO's to determine the effectiveness of DDT in controlling dry wood termites. This experimental work was done at the request of Dr. Thomas E. Snyder, Senior Entomologist, Forest Insect Investigations of the U. S. Department of Agriculture. He asked the NPCA to request that its members in Southern California conduct the tests. During the preliminary discussions between the committee and the Southern California Edison Co. (which generously furnished all the infested poles and the mechanical and physical aid needed in handling them), Chet Pencille suggested that we also treat a pole or two with HCN. The results were so complete that we decided to continue the experiments on existing buildings.

From then until the convention convened, much experimentation was carried out by several operators. Procedures were set up and the majority of the investigators felt that by using HCN fumigation we could be sure of a 100 per cent kill. We also felt the same about methyl bromide in stucco homes, but we were not sure that we would be completely finished with our experiments of wood-sided houses using methyl bromide.

It was decided to hold a Semi-Annual Convention following the annual meeting held in Riverside in February, 1947. The Semi-Annual meeting was to be held in Santa Cruz. Because the directors were informed about the results of fumigation experiments and a demonstration could be arranged by mid-summer in Los Angeles, it was decided to hold the Semi-Annual meeting in the southern city. Dr. Thomas E. Snyder and Wm. O. Buettner, Secretary of the NPCA were invited to attend this meeting. which they did.

A general assembly was held on Monday, and other meetings on Tuesday and Thursday. On these three days, instructions were issued as to the conduct and general details about the fumigations. On Monday, Tuesday and Thursday afternoons, and all day Friday, the tours were conducted to the houses being fumigated. It was necessary to caution the visitors, many of whom had no experience in fumigations, as the gas concentration of both fumigants used was exceptionally high. Discussions were carried on at the morning sessions about the demonstrations seen on the previous afternoon tour.

A general pest forum was held on Thursday which was well attended. A report will be issued later on this session.

The experimental work of which the demonstrations about to be reported are a part, involves much of the industry in Southern California and has cost the experimentors in excess of $30,000.00.

Nine buildings were fumigated, six with HCN and three with methyl bromide. Four of the structures were wood sided and five were of stud and stucco construction. Except for the time of exposure and the method of aeration, all other features were similar. Since California construction has no cellars the liquid HCN was shot underneath the house between soil and under floor. Methyl bromide was shot in similar manner for half the quantity of gas and the other half was shot directly into the attic which mainly serves as dead space area.

The wood-sided houses were completely wrapped with heavy kraft paper. In the case of the wood-sided house shot with methyl bromide, part of the paper used was silicagel sprayed in place and part was coated with paraffin on one side.

Two buildings located in the southwest part of the city, two in the central part, two in Hollywood, one each in Glendale, Montebello and Compton, were shot.

Southwest Part of City:

1. This was a stucco bungalow in a court containing 22,000 cubic feet of space. 55 lbs. of methyl bromide were introduced, half in the attic and half in the unimproved area under the floor. The building was shot on Monday, aerated on Tuesday, 24 hours later, and opened for investigation on Thursday. All vents, doors and windows were covered with heavy kraft paper stapled and sealed with masking tape. To determine the effectiveness of the treatment, a section of the cap plate in the fire wall was removed. Many dead kalotermes were found. None were alive. Dr. Snyder and others asked that a section under the house be opened to show the results. When advised that no known infestations existed they seemed satisfied and felt that if the gas, which is heavier than air, would kill in the attic, it would have the same effect in the under area.

2. This was a frame, wood-sided building containing 16,000 cubic feet of space and was shot with 44 lbs. of liquid HCN. An error was made in figuring the cubical contents of this structure, resulting in a charge of 2.5 lbs. per 1,000 cubic feet. This charge is excessive, normally. The building was completely wrapped in heavy kraft paper from the eaves to the ground. The eaves were wrapped and the paper extended into the ground where it was covered with earth to complete the seals. The fumigation was started on Saturday, July 26th. Aeration was started on Monday and continued until Wednesday evening when the tenants were allowed to re-enter the building. In this connection, the fumigator using HCN claims that it is necessary to use forced aeration, accomplished by the use of blowers, in order to cut down the time required to remove the gas. This building was opened on Thursday afternoon. Extensive areas on the north and east sides of the building were opened, both below and above the floor line. Heavy infestations were found, all of them dead. Two areas of overhanging eaves were opened, one on the north side and one on the south side. No infestation was found in the eaves on the north side. An infestation was found on the south side in one piece of sheathing at the

Penetration...

Insecticides *must* get into every crack and crevice—under mouldings, behind baseboards, between plumbing—and your sprayer *must* have complete penetration to reach these hiding places.

***Mistmaster* Portable Electric Sprayers give perfect and complete penetration. In this patented sprayer, insecticides are first broken into minute particles by a rotary compressor, then warmed above room temperature, and finally, atomized completely by tremendous pressure at the nozzle.**

The result is complete penetration. Insecticide floats longer in the air, settles gradually into every possible opening in complete strength, and does a thorough and effective job of coverage.

Other distinctive features of the *Mistmaster* Electric Sprayer are the Automatic Time Switch which can be set for spraying 1 to 24 minutes before shutting itself off, the volume control which regulates the density of spray to suit conditions, and the adjustable spray nozzle which may be directed in any position. Light in weight, built throughout to precision standards, this perfected sprayer is conveniently held in one hand, may be used for both portable and stationary spraying, and will give a life-time of thoroughly satisfactory service with all oil base insecticides.

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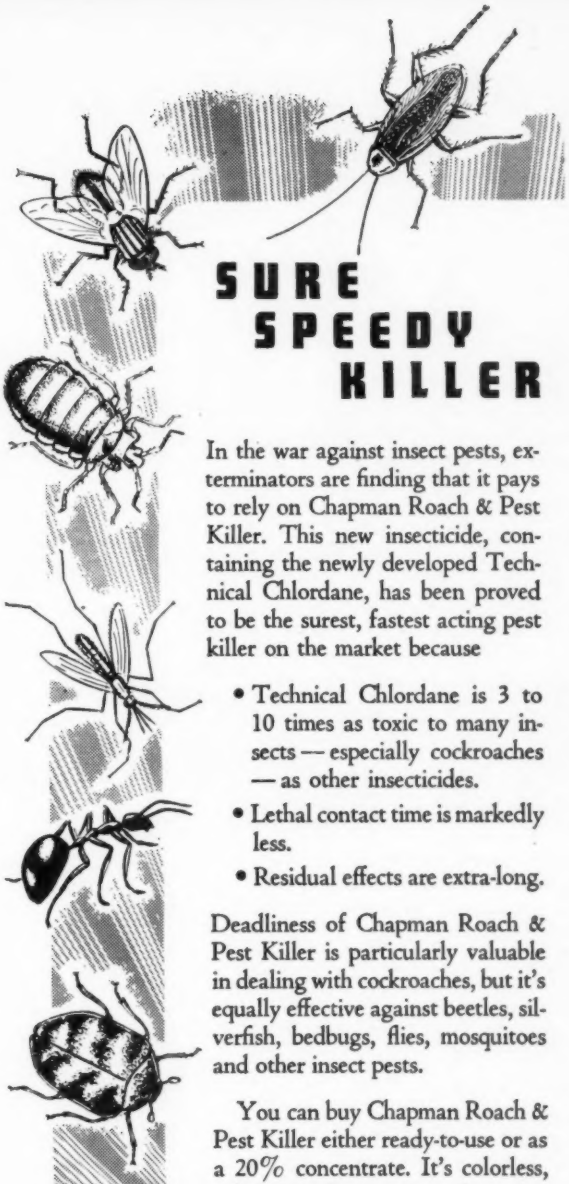

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In the war against insect pests, exterminators are finding that it pays to rely on Chapman Roach & Pest Killer. This new insecticide, containing the newly developed Technical Chlordane, has been proved to be the surest, fastest acting pest killer on the market because

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- Lethal contact time is markedly less.
- Residual effects are extra-long.

Deadliness of Chapman Roach & Pest Killer is particularly valuable in dealing with cockroaches, but it's equally effective against beetles, silverfish, bedbugs, flies, mosquitoes and other insect pests.

You can buy Chapman Roach & Pest Killer either ready-to-use or as a 20% concentrate. It's colorless, odorless and easy to use. As an up-to-date exterminator, you'll want to get all the facts on Chapman Roach & Pest Killer: the sure, speedy killer. Write us for full details.

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eaves. Forty or fifty termites were found and all of them were alive. It looked as though the fumigation had been a failure until neighbors advised the assembled crowd that the paper had come loose on Sunday evening, twenty-four to twenty-eight hours after the fumigation started. Prior experience has proven that to be effective, houses shot with HCN must remain under gas for forty-eight hours. The reason that effective kills resulted with the house was that tests proved that high concentrations had been maintained within the building during the entire fumigation.

Central Los Angeles:

1. This building was a two-story four-family flat of stud and stucco construction, containing, 57,000 cubic feet of space. It was shot with 114 lbs. of liquid HCN. It was wrapped identically as all other stud and stucco buildings. It was not opened to determine the results as time did not permit and no single question of effectiveness was voiced by any person attending the convention.

2. This was a frame, wood-sided structure. The construction known as "California Bungalow" was as follows:

1x12 rough redwood boards, laid vertically formed the side walls. Over these, on the outside, was nailed 3/8x 6 redwood drop siding. On the inside, wood lath and plaster was applied.

It should be noted for the record, that this type of construction was outlawed in Los Angeles in 1921 by city ordinance.

The building was completely wrapped, from eaves to ground and fumigated with liquid HCN on Monday. It was torn into on Friday. Heavy dry wood termite infestations were found throughout a large section of the south wall of the building, both above and below the floor line. All insects found were dead. A section of the roof of this building had been reported to contain a slight infestation. Opening of the section indicated failed to disclose any activity. One operator requested that a section of 4" girder be removed. On removal, no live activity was found in it, all the insects having been killed. As an interesting sidelight, a producing queen of Kalotermes Minor, dead of course, was found. One of the observers had a bottle of alcohol handy and soon had a prized possession. Many of the operators present had never seen a producing queen of this species. Dr. Snyder verified our find.

Montebello:

This property comprised a one-story stud and stucco structure containing 19,000 cubic feet of space. It was shot on Saturday, July 26th with 38 lbs. of liquid HCN. It had been wrapped as were all other stucco buildings. It was kept under gas for forty-eight hours, under forced aeration for forty-eight hours and opened on Friday morning. Certain roof areas and a section along the south side were opened. Many dead dry wood termites were found in the roof. Only two termites were found on the south side. These were both dead. A column on the north side of the building was opened. It was found to contain live subterranean termites. We consider this of no importance as they could easily have gained access to the framing after the fumigation was completed.

Glendale:

This building comprised a frame and stucco dwelling having a cubical content of 16,230 cubic feet. It was shot with 36 lbs. of methyl bromide. The building was wrapped in the same manner as were all other stucco buildings. All buildings shot with methyl bromide were shot identically. This building was shot on Monday, aerated on Tuesday and opened on Friday. Sections of projecting rafter ends were examined. One was found to contain a colony of halotermes, all of them dead. A section of attic on the north side, also a section at the floor line on the north side and a large area of wall, both above and below the floor line, on the east side were opened. All termites found were dead. Window framing in front had dead termites, also.

Hollywood:

This was a frame, wood-sided dwelling containing 16,000 cubic feet and was shot with 50 lbs. of methyl bromide. This is the building on which various types of paper were used. Except for the types of paper, it was wrapped in the same manner as were all other wood-sided structures. Testing showed that the parafine coated paper best retained the gas. This structure was shot on Tuesday, aerated on Wednesday, and opened for observation on Friday. Many dry wood termites were found, all of them dead.

2. This building was a stud and stucco dwelling containing 20,500 cubic feet. It was shot with 41 lbs. of liquid HCN on Monday afternoon and aerated on Wednesday. It was not opened.

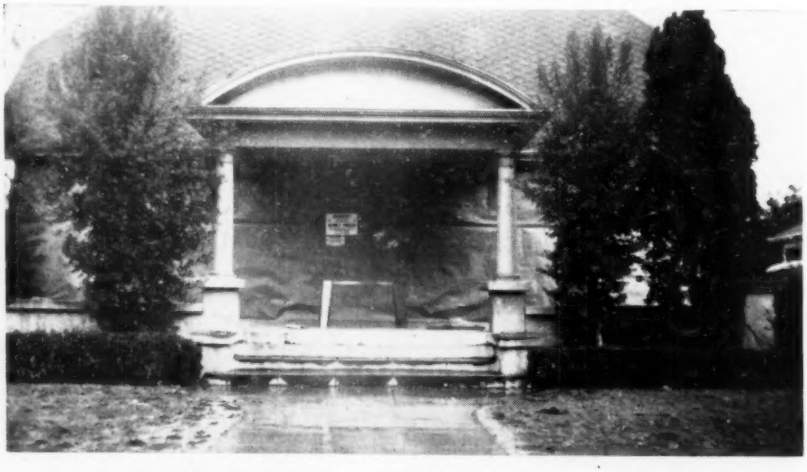
Compton:

This building was a frame, wood-sided structure. No one except the fumigator saw the building and it wasn't opened. It had been held in reserve in case of an emergency.

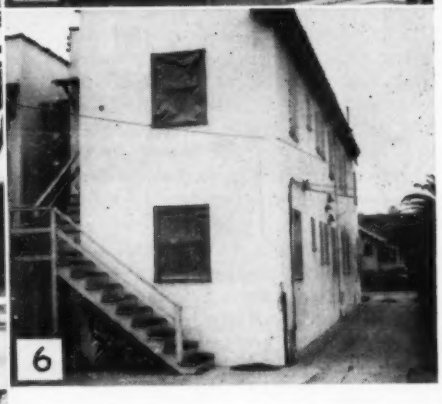
The Los Angeles Air Pollution Control, a branch of the Board of Health, conducted experiments to determine the quantity of gas retained by the methods described above. The official report will be available later in the month and will be published in a subsequent edition.

Briefly, HCN attained its maximum concentration four hours after release into the sealed structure. After forty hours, even in wood-sided buildings, 33-1/3% of the gas was retained. In the case of methyl bromide, a much heavier gas, the maximum concentration was attained within one hour. After eighteen hours exposure, 25% remained.

In his speech at the banquet on Friday night, Dr. Snyder stated that the bulletin, now being revised, covering dry wood termite control, would include the statement that "Fumigation under this original method of exteriorly sealing buildings would have a definite place in control recommendation, at least for Southern California". He also asked that definite case histories be kept on as large a number of buildings as possible.



The above residence completely covered (except roof) with heavy kraft paper, stapled and sealed with masking tape, is shown under fumigation with lethal gas as an experiment for the control of dry-wood termites.



↑

No. 1, is before wrapping.
No. 2, is after wrapping and sealed for fumigation.
No. 3, is side view of No. 1 before wrapping.
No. 4, is side view of No. 3 after sealed for fumigation.
No. 5, is a two story stuco home befor wrapping.
Nos. 6 and 7, showing side views of No. 5, after being sealed.
No. 8, showing a motor generator equipment in action.

←

This is another home being fumigated to determine the effectiveness of the treatment or the conrol of dry-wood termites. Note how careully the building is wrapped with heavy kraft paper.

Cooperation With the Pest Control Industry

By DR. THOMAS E. SNYDER, Senior Entomologist, Division of Forest Insect Investigations, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture

SINCE 1934 the Division of Forest Insect Investigations, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, has cooperated with the National Pest Control Association and local associations. The object has been to formulate standard methods for the control of termites that would be so fundamental that they could be applied in any section of the United States. The 1, 2, 3 and 3½ principles for subterranean termite control were developed which specified sanitation or removal of wood debris, structural insulation and chemical insulation. These standards are flexible as to detail but are maximum requirements for effective control. Alternatives made necessary by types of construction or financial circumstances are only countenanced provided the house owner will take the responsibility for sub-standard work.

Termite control essentially is merely applied common sense. The standards which have been developed enable the general public to evaluate provisions in a contract for termite control; the public, as well as the pest control operator, needs education.

United States government officials have felt that the officers of the National Pest Control Association were sincere in their efforts to have their members educated so that they would be able to do efficient work. A code of ethics has been developed, annual conventions, country-wide in scope and program, clinics held in cooperation with universities in this country and Canada have given pest control operators the advice of technical men on all phases of their work. The value of such an educational program has already become evident. An operator in New York last year made the original discovery that a mouse mite carries an organism which transmits a new fever—rickettsialpox.

In cooperation with the Bureau of Entomology and Plant Quarantine, the National Pest Control Association recently has carried on original research work over the entire country in the use of DDT for control of such pests as bedbugs, roaches, moths, carpet beetles, etc. On the Pacific Coast, the Pest Control Operators of California, Inc., in cooperation with the Southern California Edison Co. and this bureau, has conducted, during the past year, tests on the use of poison dust and liquids for the control of dry wood termites. During the investigations, experiments with fumigants indicated that this method was effective, if proper sealing was applied. Most recently the California Association has developed a method of completely wrapping the exterior of buildings in sealed paper before fumigation with such toxic gases as hydrocyanic acid and methyl bromide. Such original research by the industry, if proven entirely effective, will lead to more easily applied and quicker control. This method will be particularly valuable in the case of inaccessible infested timbers and where there are many heavily infested buildings. The local association has shown excellent judgment in requesting full cooperation from technical men of companies manufacturing the gases, city health officers, local and federal entomologists in the evaluation of this new method of sealing and fumigating for the control of kalotermas.

Demonstrations have been conducted all week to case-study houses under fumigation. I am much impressed since we have felt that the present recommendations of the Bureau of Entomology and Plant Quarantine are not practicable for application under all conditions. We are interested in seeing an impressive number of case histories recorded giving full details on application and results. This will be an additional method but the extent of the infestation should determine the method used.

In the past, the pest control industry has been wise in consulting the federal entomologist to make use of results of research work on the control of termites. Our investigations have involved the collection and classification of the termites of the world. We have a "rogue's gallery" or "finger print file system" enabling the identification of termites from any parts of the world. Studies have been conducted of their habits to learn how they live, what conditions of temperature and humidity, ventilation and wetness and dryness of soil are favorable; also what termites prefer to eat and why, have been carefully investigated. Data on the effectiveness of wood preservatives and relative value of soil poisons, naturally termite-resistant woods are available as is information on new and substitute building materials, including plywood and wallboard. Our specifications for the construction of termite-proof new buildings written for civilian and military federal agencies, city building codes and applicable for conditions throughout the world, may be consulted and used.

We desire that the pest control industry make more use of the results of our research. We do not know all about termites and their control but can cooperate with progressive industry so that both can exchange information and hence benefit. It has been a pleasure to cooperate with the pest control industry.

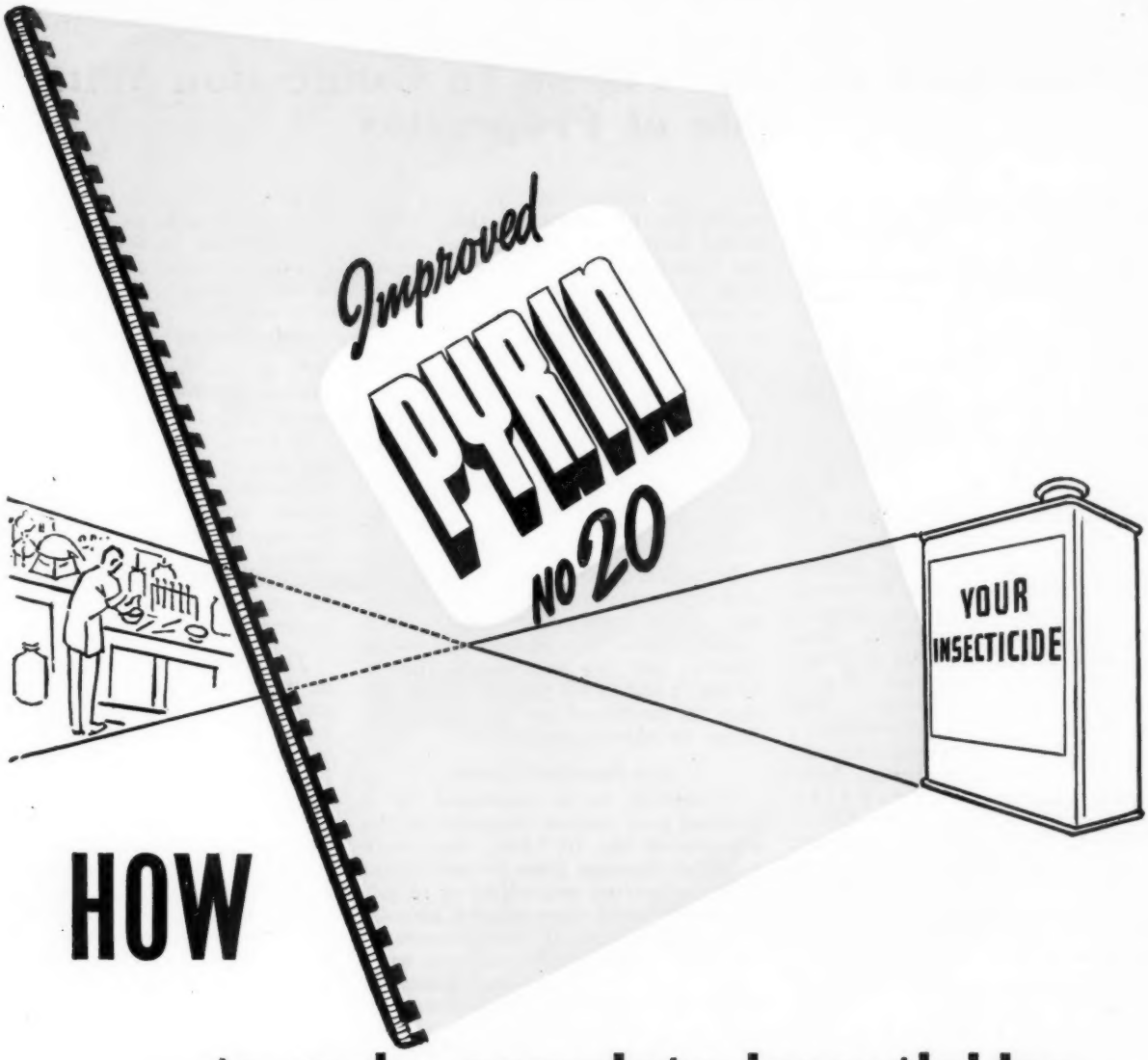
USDA Holds Hearing on New Insecticide Act Rules

A public hearing was scheduled to begin on August 25 in the South Building, U. S. Department of Agriculture, Washington, D. C., at which rules and regulations necessary for the administration and enforcement of the new Federal Insecticide, Fungicide and Rodenticide Act were to be considered, according to a recent announcement by the Department.

Interested persons were to be given opportunity at tne hearing to make known their views for or against the proposed rules and regulations. These are being formulated for the purpose of putting into effect the protective measures of the new act, which was passed by the 80th Congress in June, 1947.

The act, which replaces the Federal Insecticide Act of 1910, regulates the marketing of insecticides, fungicides, rodenticides, herbicides, and devices. Because of its broader scope, the new act will give farmers and the general public a much greater measure of protection in the sale of insecticides and fungicides than was possible under the former act. In addition, it regulates the marketing of rodenticides, herbicides (weed killers), and devices for pest control. A provision which requires that all economic poisons covered by the law be registered with the Department will give added protection to users of such materials.

The new act became effective as to devices for pest control on June 25, 1947, the day it became law. Its provisions will not become fully effective on rodenticides and herbicides until December 25, 1947, and on insecticides and fungicides until June 25, 1948. It will be necessary for these products to be registered with the Department by such dates. Until the new act becomes fully effective on insecticides and fungicides, the provisions of the Insecticide Act of 1910 will apply to these two products.



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Standard Termite Clause In Connection With Sale of Properties

IN GENERAL, termites and other wood-destroying organisms become a sensitive subject to Californians and especially to prospective purchasers of property. Most houses are inspected for infestations prior to purchase and the task was to bring about some type of "standard clause" that would be fair to seller and purchaser. The Berkeley Real Estate Board of Berkeley, California, has given a great deal of study to this matter.

A committee composed of the following finally presented a report:

Louis B. Sands, President, Berkeley Realty Board; Harold Morrison, Past President, Berkeley Realty Board; Director, California Real Estate Association; Maurice G. Read, Past President, California Real Estate Association; Director, National Real Estate Association; Woody Schenck, Assistant Cashier, American Trust Co., Berkeley; Andy R. Udall, Appraiser, Berkeley Branches, Bank of America; Elmer B. Pearson, Pest Control Operator; and Wayne K. Davis, Pest Control Operator.

The report itself reads:

Experience of Real Estate Operators

It was brought out that some real estate firms still hesitate to use the standard clause, some use it only in part, or substitute wording of their own, and some avoid its use wherever possible.

Mr. Read reported on the experience of Mason-McDuffie Company. This firm went hesitatingly into the use of the clause, he reported, and for a time used it only when the subject was brought up by the buyer. He said practically all problems resulted from cases where the clause was *not* used and buyers felt that it should have been. Very little trouble developed where the clause was used. As a result they now recommend its use in all deals. Sometimes, he said, the seller wishes to limit his liability to some definite amount in which case the limit is included in the agreement. Sometimes the seller refuses to accept the clause, in which case the inspection is ordered first and the deal waits until the report is in.

Mr. Read stated that occasionally sellers reported that they had not seen the termite clause when they signed the agreement. To avoid this possibility he reported that three things have been done by his firm; the stamp has been made in larger type, it is stamped in red ink, and salespeople are requested to have the seller initial the clause in the agreement.

Everyone present agreed that the best practice is to have property inspected before the sale comes up, though it was likewise agreed that this is not always feasible.

Approval of the present wording of the clause was given in a motion:

MOVED: That it is the opinion of this committee that the present wording of the standard structural pest control clause has been found satisfactory, that we recommend that it be continued in its present form and that its increased use by real estate firms be encouraged.

The Standard Clause

"Property to be examined by a licensed pest control inspector at the expense of the BUYER. Any work to repair damage from infestation of wood-destroying organisms or to correct conditions that caused infestation to be done at the expense of the SELLER. Funds for such work to be held in escrow and disbursed upon clearance by the inspector."

Reasons For Wording Used In Standard Termite Clause

"Property to be examined by a licensed control inspector—"

Making clear that only a report by a licensed person can be used.

"—at the expense of the BUYER."

The buyer has the choice of inspector and may carry the inspection to whatever length he feels is necessary, since he is paying for the service. If he accepts an incomplete report only he or his inspector is at fault.

"Any work to repair damage from infestation of wood-destroying organisms"

Notice that the word "Termite" is not used. The clause covers fungus and wood-boring beetles as well as termites. Any attempt to separate them is unsound practice as conditions of infestation and control are closely related and many times inseparable. Obviously any damage should be repaired. The difficult problem is to draw the line between existing damage and potential damage, bearing in mind that the inspector is usually handicapped by difficulty of access and has only partial information. This division is attempted in the following wording:

"or to correct conditions which caused infestation to be done at the expense of the SELLER."

If there is no infestation or damage found, the seller is not to be held responsible for correcting conditions which might cause infestation or damage in the future. The interpretations on the last two pages of the report are intended as case examples for many close decisions which must invariably result.

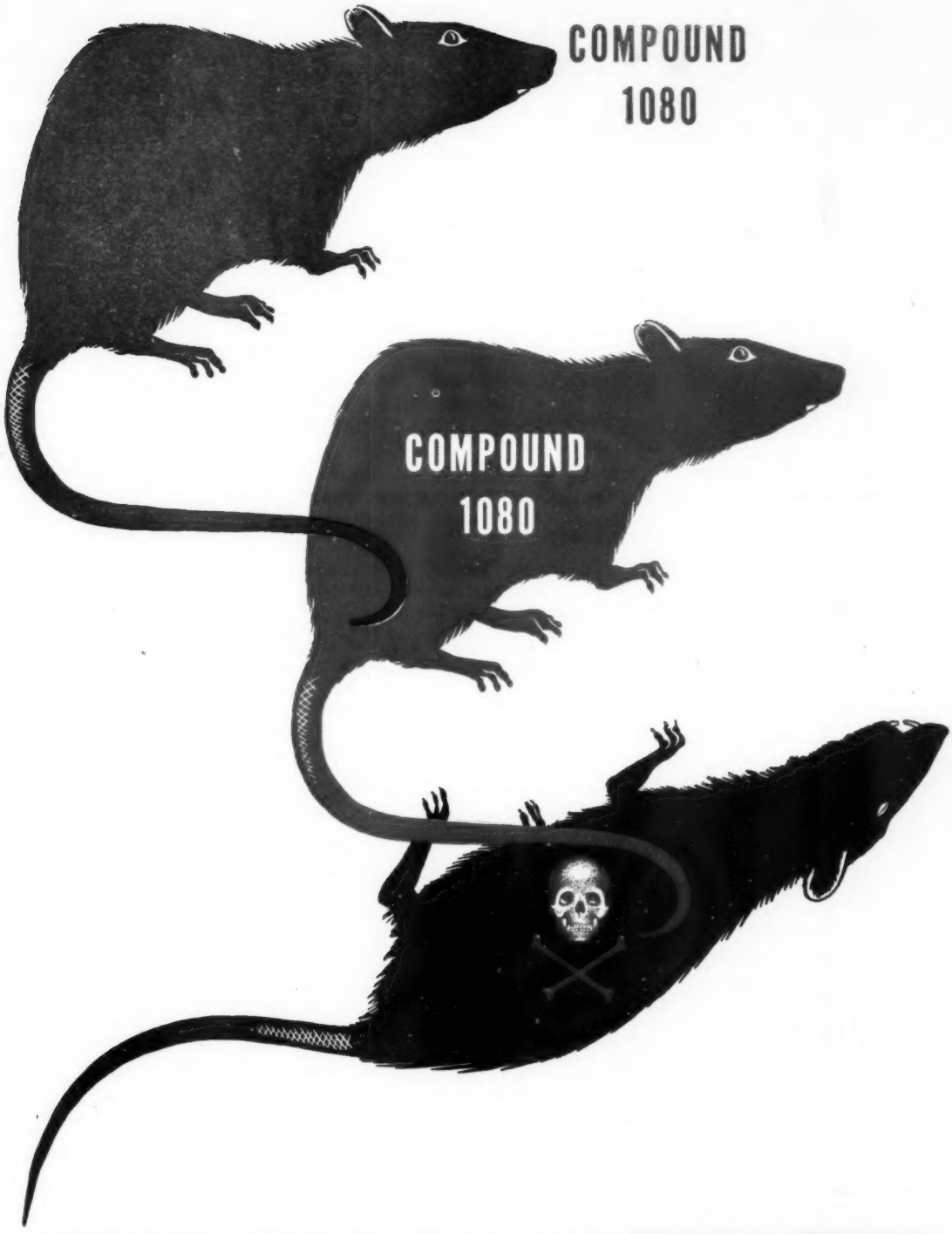
The operator must keep constantly in mind that he is acting as judge and jury on the basis of the clause as written. It is very easy for him to be influenced by a natural professional impulse to recommend measures for the greatest possible protection of the property and to saddle the seller with all expenses. The clause is NOT so written. The seller pays only for damage or conditions which caused infestation. There is often variation between operators on exact procedure and costs, but the greater variation is likely to be in the extent of protective measures needed. The protective portion of the program is a matter strictly between the buyer and the operator and is not a part of the deal.

"Funds for such work to be held in escrow and disbursed upon clearance by the inspector."

Holding funds for the work in escrow assures all parties that the work will be paid or. In most cases the inspector will also be the operator who does the work. However the seller might wish to make his own arrangements about having the work done. The work would have to be acceptable to the buyer or his inspector in any case.

Interpretation of the Clause As It Applies To Pest Control Work

The principal difficulty of operators in applying the clause is that of differentiating between "Conditions which caused infestation—" and conditions which are not satisfactory or which *might* cause infestation. To clarify this point agreement



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was reached as follows:

Illustration is a stucco house. The stucco appears to be in good condition. The foundation is slightly below the outside grade level at (B) and (C).

Example 1. If steps or porches (A) or some portions OTHER THAN THE MAIN STRUCTURE show evidence of damage from wood destroying organisms (termite infestation, fungus infection, wood boring beetle infestation) while there is no evidence of infestation or infection found in the building proper, the report is to call specific attention to this fact. The recommendations to call for correction of the damaged area, at the expense of the seller. Recommendations to suggest that the property be reinspected periodically to check potential hazards (BC). These potential hazards to be the responsibility of the buyer.

Example 2. If there is a condition which might cause infestation (BC) in two or more portions of a building, and infestation or damage is found in one of these areas (C), all other parts (B) having the same conditions will be assumed to be infested and the seller will be responsible for their correction.

Example 3. If there are potential conditions in two or more areas of the building (BC) due only to secondary causes so far as can be determined, the seller shall be responsible only for correction of the secondary condition, (DEF), specific mention to be made that all evidence points to infestation being due to secondary causes, and recommendations to suggest periodical reinspection.

Example 4. The fact that a building is sub-standard in construction or does not conform to building codes, does not obligate the seller to correct those conditions. In case infestation is found, the seller is not to be required to put the building in condition to conform with building codes unless such work is necessary as part of structural pest control measures. Any additional work required for structural safety or to comply with building codes is the responsibility of the buyer.

Example 5. In case of inaccessible areas or unknown conditions, these should be plainly indicated on the report. The buyer then has the option of accepting the report or of requiring further inspection to be carried out at his expense. If no further inspection is called for and the sale is completed, all factors of the contract are satisfied.

IN GENERAL

1. When two parties have agreed to a sale on the assumption that the property is as it appears, the seller should be responsible for infestation or damage found and the buyer should accept the property if these conditions are corrected.

2. Complications can be avoided if the inspection is made *before* the property is offered for sale, in which case the standard clause may not be necessary.

3. The standard clause was devised to provide wording which can be correctly interpreted, and to give a basis for a fair deal to all parties. There is a reason for the wording of each part of the clause.

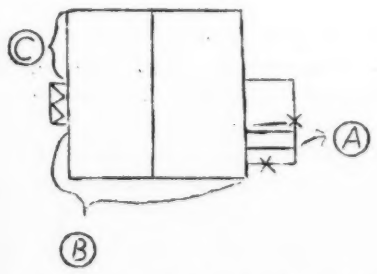
4. The seller should be informed of his obligation in regard to the clause when he signs the original agreement.

5. The buyer should have opportunity to check the inspection report before the deal is closed.

6. The clause leaves a great deal to the discretion of the pest control operator. For its successful use he must exercise good judgment in applying the clause *as worded and interpreted.* The operator must earn and retain the confidence of brokers and lending agencies if the plan is to be successful.

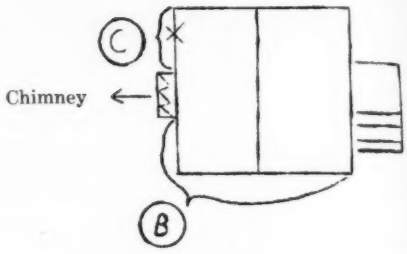
At the meeting held in the Brown Hotel in San Francisco Mr. Maurice G. Read discussed the value of the use of such standard clause and showed that whenever there was used as a basis of sale this clause, there never has arisen any difficulties in that if there was work needed, it was done to the complete satisfaction of both the seller and purchaser. It would appear particularly worthwhile for real estate boards throughout the country to give consideration to this subject especially where there is great prevalence of termites.

—1—



In festation at (C) apparently from outside.

—2—



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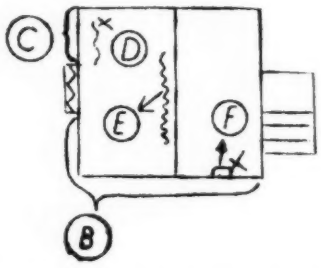

Concrete forms left in place (DE). Meter Box at (F). Infestations at (D) and (F).

Mighty Mite

Minor miracles have been claimed for DDT during the several years since its introduction, but a recent statement by the Japanese government indicating its dependence upon DDT to boost coal production gets our vote for herculean accomplishment, reports Chem. & Eng. News. Announcing plans to distribute 200,000 cases of "delousers" to coal miners, the National Coal Production Committee ventured the hope that the insecticide would allow miners more sleep.

Aerosol for Blue Mold

A 5-lb. refillable aerosol bomb which, it is stated, will control blue mold in tobacco seedbeds is made by the Edco Corp., Newark, Del. The aerosol, distributed by Innis, Speiden & Co., New York, N. Y., contains benzyl salicylate and cottonseed oil and is propelled by Freon-12. One-half pound per 100 square yards is the dosage for small plants, while larger plants require from 1 to 1.25 lb. per 100 square yards. One bomb is ordinarily sufficient for 100 square yards of seedbed for one season, it is stated.

A Junior High Problem

In my biology class I noticed that Henry wasn't paying attention, was just staring vacantly into space. At the time I didn't know that his mother was ill, his brother entering the Army, and his father suffering business reverses, so I threw out a question to wake him up: "Henry, how many legs has a mosquito?' the 13-year-old took his chin off his hands, stood up in exasperation and said, "Miss Jones, I wish I had your problems!"

—Bert Briller

Rats

"Each U. S. Citizen supports between one and two rats."

—Public Health Service report

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Penn-Drake SUPER-SOL

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Northern California PCO's Greet Dr. Thomas E. Snyder and William O. Buettner August 4 and 5, 1947

ALL ASSOCIATIONS were well represented at the two days' meeting of Pest Control Operators held in San Francisco, California, on August 4th and 5th. Dr. Thomas E. Snyder and NPCA Secreary William O. Buettner and party were met at the railroad station early on the morning of August 4th by Regional Vice-President V. H. Montgomery and a delagation of PCO's and then officially motored to the headquarters at the Palace Hotel by one of San Francisco's Supervisors, George Christopher. Mr. Christopher is Chairman of the Public Health and Welfare Committee of the City and County of San Francisco.

The first day was given over mainly to a well planned inspection tour of some ten houses either already treated or in process of work on subterranean termite control. Wayne K. Davis and Elmer B. Pearson should be highly complimented on the detailed drawings, descriptive information about the properties, and schedule of inspections that permitted maximum opportunity to observe termite control operations, especially in Berkeley, Calif.

Accompanying Dr. Snyder and "Bill" Buettner on this tour were several PCO's and Professor E. O. Essig of the University of California. It was obvious that reconstruction, replacements and repairs took precedence over chemical treating. The objective throughout was to break direct contact of soil/moisture and timber/cellulose. Structural problems were evident everywhere and the manner in which the work was done showed the importance of not relying on chemical treating or an over amount of chemical application.

The open house at the home of the V. H. Montgomerys' on Monday evening was attended by over fifty PCO's and their wives making for an informality of discussions and industry problems.

Tuesday morning permitted visitations to be made to observe equipment and discuss further problems of general insect control and fumigations.

George G. Aitkenhead, Secretary of the Pest Control Operators of California, Inc., presided at the afternoon meeting which was an "Open Forum." Mr. Maurice G. Read of the Berkeley Real Estate Board spoke of the program that the Committee on "Standard Termite Clause" had accomplished and recommended very strongly that such policy should prevail throughout the state of California. (Ed. Note: The complete text appears elsewhere in this issue.) Dr. Thos. E. Snyder outlined the splendid program on tests conducted by the method of fumigation for dry wood termites in the southern part of the state as well as commenting upon the fine work done on the jobs that had been inspected the day previously in Berkeley.

"Bill" Buettner then took over in what became a "Question and Answers" session. Chlordane came in for much discussion especially in the field of ant control. The general consensus of opinion is that much more work must be done on formulations, especially a greater understanding with regard to proper application of the emulsion type of finished insecticide. Rodent control likewise became a lively topic as did also various phases of general insect control.

NPCA Regional Vice-President V. H. Montgomery presided at the banquet in the evening and acknowledged with thanks the splendid cooperation that many had given to make the meetings so successful and especially praised the tests that were conducted in the southern part of the state for kalotermes. Charles Delk, President of the State Association, emphasized the importance of strong association to bring accomplishments. Wilfred Gunn brought the greetings from the south and expressed himself as pleased with the accomplishments. Professor E. O. Essig followed an interesting and humorous talk given by a gentleman connected with the San Francisco Post Office who spoke about "Gardening as a Hobby." Prof. Essig indicated his pleasure to observe first hand the several buildings that were inspected the day previously, particularly noting the thoroughness with which these jobs have been done. His keen interest in the affairs of the pest control industry and his pledge of support were applauded.

Bill Buettner reviewed briefly the history of the National Pest Control Association striking back to the period when there was no association and how by trial and error plus hard work in the absence of much bona fide research work the men in the industry produced results. Touching upon the future of the industry with its impact of residuals, he pointed out the need of developing added skills that would make for demands of our services because of efficient formulations and technique of application the firms of our industry would be preferred against self-efforts of insect and rodent control. The necessity for newer and distinctively PCO equipment was stressed as was also the fact that our industry would reach out to new arms of endeavor including the type of gadgets and equipment that could best be made a part of the service work of the trained and experienced PCO.

The guest speaker was Dr. Thos. E. Snyder who reviewed much in the evolution of termite control procedures which from questionable practices have been replaced with a degree of intelligence and foresight. Today with the type of program being conducted by the National Pest Control Association there is bound to be a closer working relationship between the distinctly research field and commercial control practices. He particularly praised the work being done by the PCO's and looked forward to greater cooperation as their continued program of open-mindedness to utilize the important findings of research and application in the field.

Poison Discovered On Cafe's Dishes

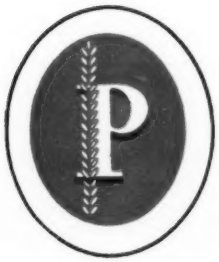
San Jose restaurants serviced by a pest control firm using sodium chlorine last night were warned by City Health Officer Dr. Dwight M. Bissell concerning proper application of the green-hued poison.

Dr. Bissell said the cockroach killer had been found sprinkled on dishes in one N. First street restaurant in recent days and that at least one comparatively mild case of poisoning had resulted from it.

City and state regulations require that the eradicative agent be kept on the floor and below the level of use where dishes ordinarily are found, he said.

Symptoms are described as dizziness and diarrheal characteristics. The chemical can have a fatal effect and does not have an antidote.

Dr. Bissell said his office has reported the pest control firm concerned to appropriate state authorities.—San Jose Mercury Herald.



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Methyl Bromide Delousing, DDT Insecticides, and Rodent Control Problems at New York Port of Embarkation

Major Henry H. Richardson, Sanitary Corps, Army of the United States

METHYL BROMIDE gas disinfestation has been rather widely used [1 to 5] in World War II to replace steam disinfestation in connection with delousing of troops. Methyl bromide has a great advantage over steam in that no damage is done to woolen clothing, plastics, leather, and other goods. While it greatly simplifies the disinfestation, care must be exercised as the gas itself is toxic to man. The personnel undress and place their clothing in bags which are then transferred to gas fumigation chambers (figure 1) and exposed for thirty minutes at a dosage of 9 lb. per 1,000 cu. ft. at 60° F. or above (12 lb. is used when temperature is below 60° F.). See figure 2. After the fumigation, the clothing is ventilated for ten minutes (figure 3) in the gas chamber by means of a powerful exhaust motor; then it is returned to the personnel, who are allowed to dress immediately. While the clothing is being fumigated, personnel take a thorough shower, are inspected, and then sprayed with a delousing insecticide. Considerable amounts of gas were found to be given off when the clothing was unfolded and shaken out. Gas concentrations, as indicated by the halide peak detector (Med. Dept. Item No. 4209600), varied from 100 to 130 p. p. m. or more in dressing rooms at times of maximum operation.[6] In periods of slow operation concentrations fell below 40 p. p. m. Maximum concentration for eight hours' exposure of personnel is 30 p. p. m. [4 5] Average concentrations [7] were not greatly above allowable limit, yet should not be ignored.

After considering various procedures for removal of gas, a suggestion was made for installation of a highly ventilated room where clothing could be shaken out before the personnel dressed. Figure 4 shows such a room in operation. The clothing is dumped out on a slotted surface bench through which air is exhausted. Air forced in at the top of the room blows past the personnel and is pulled out through the slotted surface. The exhaust is regulated so that a slight negative pressure is present, thereby preventing the gas from spreading throughout the disinfestation plant. The efficiency of the shake-out room will depend greatly on the thoroughness with which clothing is shaken out; however, even then, the clothing gives off a small amount of methyl bromide in the dressing rooms and some exhaust ventilation is still advisable there.

FIGURE 1. Loading the clothing into an all-steel chamber. Note front door support just above head of soldier at right.

Methyl Bromide Fumigation Chambers

At first, plywood gas chambers were used at the port. Later concrete chambers and, finally, welded all-steel chambers developed by the Office of The Surgeon General, the Chief of Engineers, and cooperating agencies were used (figures 2 and 3). The all-steel chambers were equipped with pressure gages which gave an immediate check on the over-all tightness of the gas chambers. Methyl bromide is so penetrating[8 9] that all leakage must be closely checked and corrected. It is interesting that the gas pressure rose almost immediately to about the same amount in a chamber loaded with clothing as in an empty chamber, thus corroborating the very fast penetration and low sorption of methyl bromide. The gas chambers had a wide single rubber gasket into which two metal beads impinge, giving a double lock to prevent leakage at the doors and other openings (figure 1).

Louse Infestation of Prisoners of War

A principal use of the disinfestation plant was in delousing prisoners of war brought to the United States during the period from 1943 to 1945. Table I shows the body louse infestation **(Pediculus humanus corporis)** of the German and Italian prisoners of war on arrival at port. These figures were obtained by inspections of the clothing of about 10 to 15 percent of the prisoners in any one movement.

Acknowledgment is made of the assistance in the work by Technician Third Grade J. J. Jones and Sanitary Inspector T. E. Burns. Acknowledgment is also made to the U. S. Army Medical Museum for most of the identifications.

[1]Latta, R.: Methyl Bromide Fumigation for the Delousing of Troops. J. Econ. Entom., 37: 103, Feb. 1944.

[2]Latta, R., Richardson, H. H., and Kindler, J. B.: Methyl Bromide as a Delousing Agent, Circular No. 745, Apr. 1946, U. S. Department of Agriculture, Washington, D. C.

[3]Prevention and Control of Typhus Fever, with inclosure, "Measures Prescribed by The Surgeon General for the Prevention and Control of Typhus Fever at Ports of Embarkation," Circular No. 99, Aug. 1943, War Department, Office of the Chief of Transportation.

[4]Fumigation and Bath Company, Wa Department Technical Manual 10—645, 21 Oct. 1944. Washington: U. S. Government Printing Office.

[5]Disinfestation Procedures, War Department Technical Bulletin TB MED 184, July 1945. Washington: U. S. Government Printing Office.

[6]Houghton, J. A.: Determination of Halogenated Hydrocarbons in Air, Bull. U. S. Army M. Dept., 5:220-222, Feb. 1946.

[7]Control of Methyl Bromide Gas in Disinfestation, Bull. U. S. Army M. Dept., 4:416-417, Oct. 1945.

[8]Richardson, H. H., Johnson, A. C., Bulger, J. W., Casanges, A. H., and Johnson, G. V.: Studies of Methyl Bromide in Greenhouse and Vault Fumigation, Technical Bulletin No. 853, Sept. 1943, pp. 6-13, U. S. Department of Agriculture, Washington, D. C.

[9]Richardson, H. H.: Studies of Methyl Bromide, Chloropicrin, Certain Nitriles, and Other Fumigants Against the Bedbug, J. Econ. Entom., 36:420-426, June 1943.

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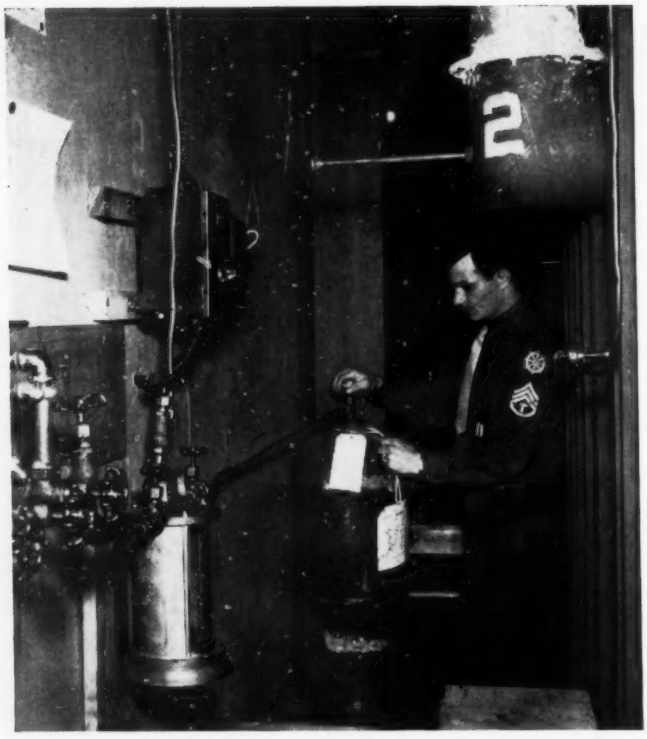


FIGURE 2. Measuring volume of methyl bromide flowing into gas chamber.

Table I

Body louse infestation of German and Italian prisoners of war on debarkation at New York Port of Embarkation

(1943-1945, inclusive)

Year	Quarter	Total POWs	Number examined	Body louse infestation (percent)
1943	2d	24,153	2,689	2.2
1943	3d	60,017	5,115	3.3
1943	4th	1,926	664	1.1
1944	1st	1,127	371	0.3
1944	2d	3,256	964	0.3
1944	3d	60,318	7,349	0.6
1944	4th	32,398	3,496	2.2
1945	1st	8,233	1,742	0.4
1945	2d	33,030	4,957	0.2

Louse infestation averaged from 2.2 to 3.3 per cent in 1943. Some individual shipments had as high as 10.3 to 20 percent of body louse infestation. Average infestation was 3.6 percent in 1943, 1.1 percent in 1944, and 0.2 percent in 1945. This rapid drop was probably due to the use of DDT powder, methyl bromide, and/or other delousing treatments before embarkation and during the voyage; however, two shipments in 1944 had infestations of 7.5 to 8.5 percent, but these were the exceptions. Practically all shipments also had small amounts of crab louse **(Phthirius pubis)** and head louse **(Pediculus humanus humanus)** infestations.

The standard operating procedures finally developed specified that inspections and louse collections be made after methyl bromide or other disinfestation, as a check on the efficiency of the delousing process. The lice were always active after the methyl bromide treatment, but in all collections complete kill occurred after two to four hours. Complete kill of the eggs was obtained also in several tests where fumigated eggs were held over a period of twenty days under the most favorable conditions of temperature and humidity.[10]

In connection with the over-all delousing treatment, the importance of the application of an efficient delousing spray to the hairy parts of the body of all personnel, as prescribed by The Surgeon General,[3] cannot be overemphasized. In a number of cases, living lice were found on the prisoners after they had had a thorough shower with plenty of soap and hot water. The application of insecticide spray delousing (Q. M. 51-I-310) gave complete kill of such lice and left a residue to kill any eggs that might subsequently hatch out.

Control of Insects on Army Transports

DDT residual spray (5 percent DDT—Q. M. 51-I-305) was first used on transports at the New York Port of Embarkation in June 1944.[11] DDT residual spray has given outstanding control of bedbugs **(Cimex lectularius).** One thorough application has been sufficient, and in a number of cases reapplication has not been necessary for a year or more. DDT spray and powder have also given good control of roaches, but in the case of heavy infestations of German roaches **(Blatta germanica),** several very thorough and complete applications over a period of two or three months have been necessary. DDT has not appeared strikingly more effective than sodium fluoride in the control of the above roach. On the other hand, the

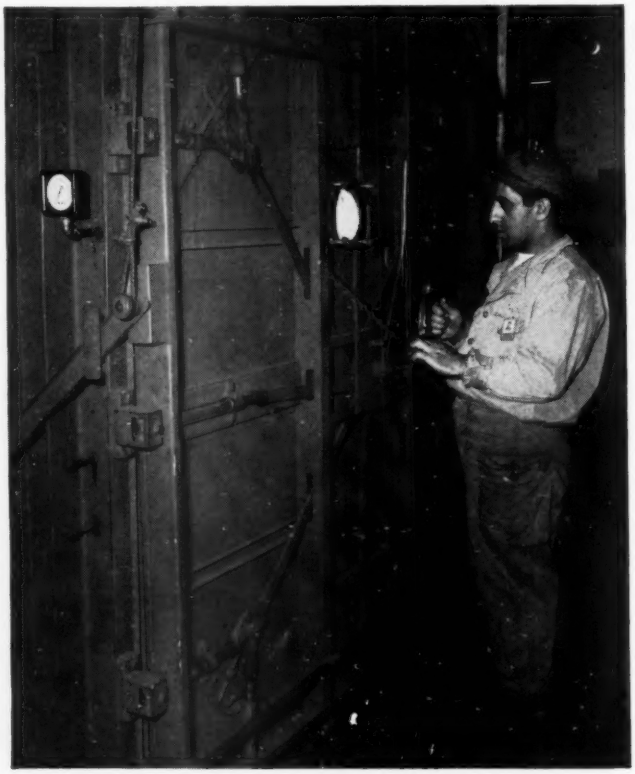
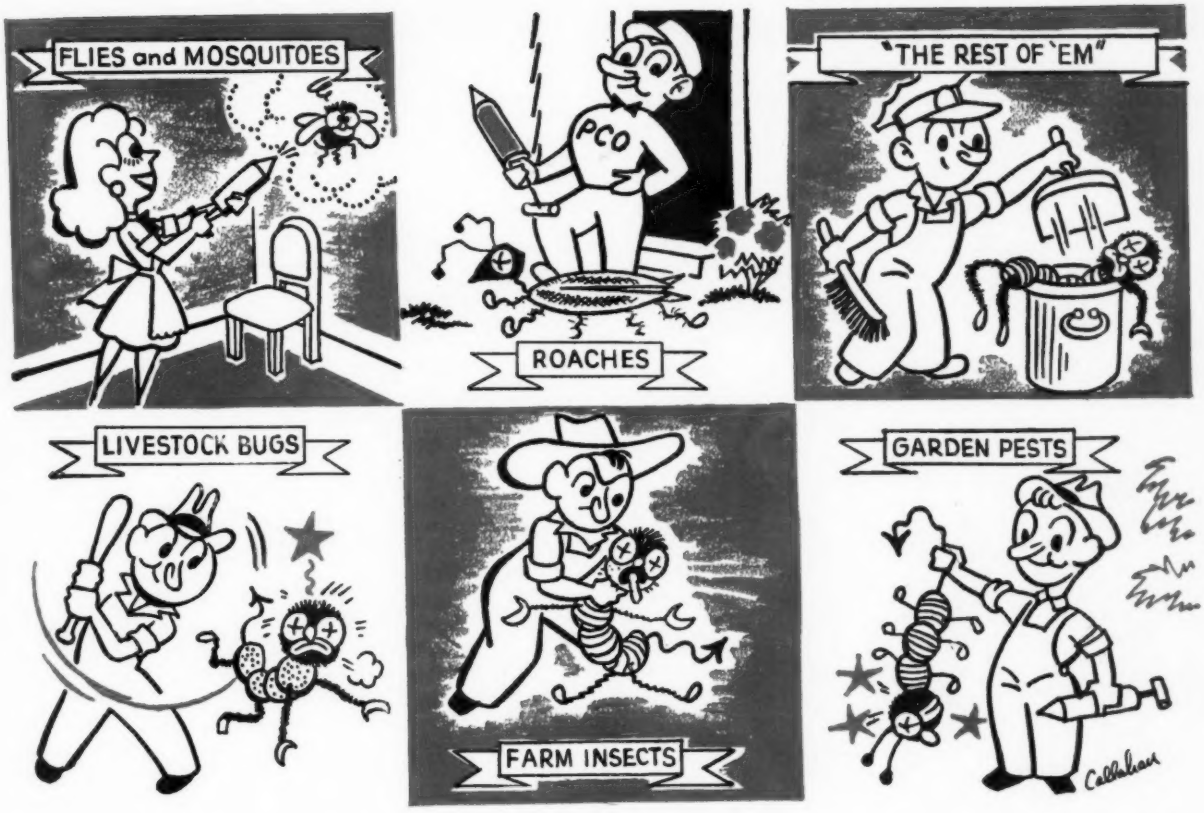


FIGURE 3. Methyl bromide gas chamber being ventilated. Note vent opening and cover (center), pressure gage (puper left), and arrangement of closing clamps for front door.

[10]Dr. E. J. Hansens and others of the Rockefeller Institute for Medical Research provided reared lots of adult lice and eggs for tests of fumigation chambers and equipment before routine delousing was initiated.

[11]DDT Insecticides and Their Uses. War Department Technical Bulletin TB MED 194, 17 Aug. 1945. Washington: U. S. Government Printing Office.



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large American roach **(Periplaneta americana)** appeared to be much more sensitive to the spray. Heavy infestations of this large roach have been occasionally found deep in the holds near the covers of deep tanks and other places on board ship. One thorough application of DDT spray has been sufficient to kill completely all active stages.[12] DDT spray and powder also gave excellent control in single

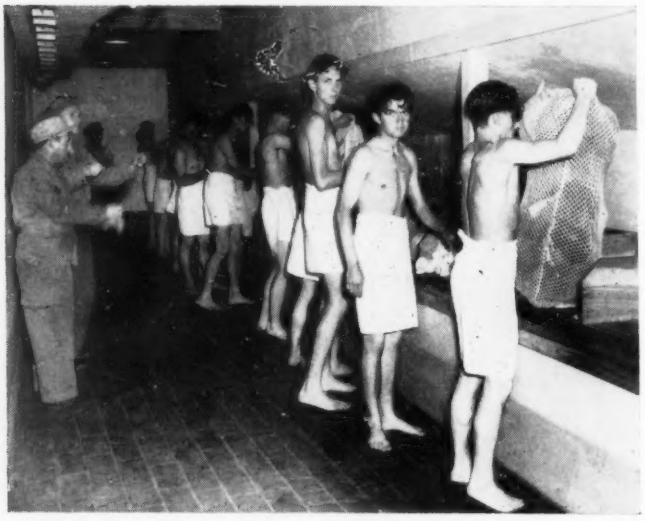

FIGURE 4. Room in which clothing is shaken out on slotted surface bench. Air inlets are shown at top left. Air is exhausted through bench slots and at bottom of bench.

instances of flea and ant infestations. A list of insects found on some Army transports over the period from 1943-1946 at the New York Port of Embarkation follows:

Table II

Insects found on some transports

Common name	Scientific name	Where found
American roach	*Periplaneta americana*	Galley-messes.
German roach	*Blatta germanica*	Galley-messes.
Oriental roach	*Blatta orientalis*	In hold.
Cricket		No. 4 lower hold.
Bedbug	*Cimex lectularius*	In bedding and bunks.
Body lice	*Pediculus humanus corporis*	Old clothing of PW.
Crab louse	*Phthirius pubis*	Skin of PW passenger.
Head louse	*Pediculus humanus humanus*	Hair on PW passenger.
Human flea	*Pulex irritans*	Old life preservers.
Ant	*Monomorium destructor*	Galley.
Rice weevil	*Sitophilus oryza*	Grated cheese—dry storage.
Confused flour beetle	*Tribolium confusum*	Flour—dry storage.
Red flour beetle	*Tribolium castaneum*	Flour—dry storage.
Saw-toothed grain beetle	*Oryzaephilus surinamensis*	Flour—dry storage.
Bean weevil	*Acanthoscelides obtectus*	Split peas—dry storage.
Weevil	*Callosobruchus chinensis*	Split peas—dry storage.
Potato Tuberworm moth	*Gnorimoschema operculella*	Potatoes—dry storage.
Dermestid beetle and larvae	*Dermestes ater*	Meat block—galley.
House fly	*Musca domestica*	Refuse—troop galley.
Scavenger fly	*Megaselia scalaris*	Galley.
Scavenger fly	*Desmometopa M-nigrum*	Galley.
Powder post beetle	*Lyctidae*	Wooden panel in cabin.
Predacious ground beetle	*Carabidae*	Lower hold — apparently attacking roaches.

Control of practically all the above infestations was obtained usually by removal and salvage of infested food, clothing, or refuse and application of DDT spray or powder to infested areas. Meat blocks infested with dermestid beetles were usually scalded or resurfaced. All prisoners of war were deloused. In some cases simply good sanitary practice was sufficient to eliminate infestations.

Rodent Control

Almost all rats found on U. S. Army transports were of the black rat type (figure 5) as follows:

1. Alexandrine or roof rat **(Rattus rattus alexandrinus).**
2. White bellied rat **(Rattus frugivorus).**
3. Black or ship rat **(Rattus rattus rattus).**

FIGURE 5. Roof rat **(Rattus rattus alexandrinus).** Note long tail and large ears.

In a few cases, some of the brown, Norway type of rat **(Rattus norvegicus)** with small ears and short tail have been found, but these were the exception. The only type of mouse found was the common house mouse **(Mus musculus).**

Intensive trapping and the occasional use of zinc phosphide bait has yielded excellent results in the control of ship rats, and in some cases complete elimination of rodent infestation has resulted.[13] The standard operating procedure also included the application of DDT powder (Q. M. 51-I-180) to rat runs or harborages to control rat fleas if present. One example of rat control is given in the case of the U. S. Army transport **Seatrain Lakehurst.** This ship returned to port in late November 1945 from Okinawa and other Pacific areas. Sanitary inspections made immediately after arrival indicated a moderate black rat infestation.[14]

An intensive trapping campaign was immediately initiated, along with the use of zinc phosphide bait prepared with ground beef scraps (mixture ratio was 1 oz. to 6 lb. of beef). After the first twenty-four hours, four rats were trapped and two poisoned rats removed. Three more rats were trapped in the next two weeks, and five poisoned rats were later located by the steam fitter while working among the steam pipes on the vessel. A total of fourteen rats was trapped or poisoned. Ship returned to port in January and March 1946, and in none of the six subsequent inspections have any rats or rat evidence been found. Similar results have been obtained on other U. S. Army transports.

No control work has been done yet with the new rodenticide 1080 (sodium fluoroacetate) but supplies for test have been requested. Cyanide fumigation for rodent control on Army transports has been necessary only on very few occasions from 1943 to 1946. The United States Public Health Service quarantine station performed all such fumigations which were usually required from a quarantine standpoint. The principal disadvantage of the use of cyanide fumigation was the time, trouble, and expense required for complete removal of all personnel from the ship, with the consequent stoppage of the repair work ordinarily necessary during the short time the transports were usually in port and the resultant upset in sailing and convoy schedules. In addition, detailed precautions must be taken to ensure the killing of rats harboring on top decks, in hawser coils and life boats, or in very deep double bulkhead harborage in a ship. For the above reasons every effort was made to avoid the necessity for such fumigation.

[12] In control work on the U.S.A.T. **Shanks,** a total of 374 and 301 large American roaches were killed with one application of spray in No. 1 and No. 2 lower holds (counts made three days after). Six roaches were moribund, but these all died within the following one to three days.

[13] Rodent Control, War Department Technical Bulletin TB MED 144, April 1945.

[14] In addition to usual quarantine declaration, the U. S. Public Health Service quarantine station was immediately notified, by telephone, of all cases of above type.

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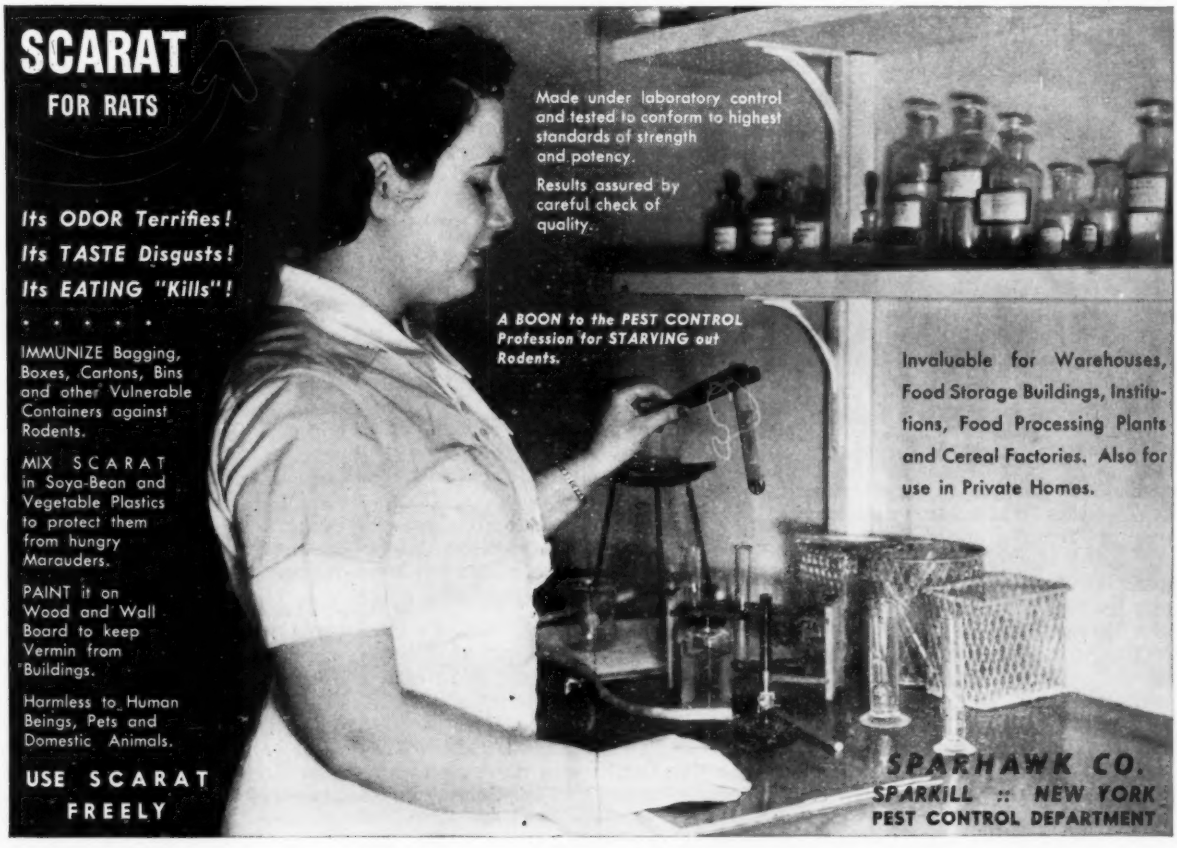

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The Tropical Rat Mite and the Pest Control Operator

By ERNEST M. MILLS, U. S. Fish and Wildlife Service, New Brunswick, N. J.

THE TROPICAL rat mite, **Liponyssus bacoti** Hirst, is a fairly common mite of rats and mice in warm climates and is cosmopolitan in distribution. It is important to recognize the presence of this mite in rodent control practice because it may cause acute dermatitis and may be a factor in transmitting endemic typhus fever and perhaps other diseases.

The term "tropical rat mite" is a misnomer. The distribution of this mite is not necessarily confined to warmer climates. It may be found in most places where brown and black rats occur; it has been found as far north as Alaska. However, it is true that such rat mites are more abundant in the warmer sections of the Unitde States.

In some regions this mite is one of the least common mites and low in relative abundance of all parasites. Cole and Koepke (3) found that **Liponyssus bacoti** formed only 0.3% of all ectoparasites in studying 6,123 rats from Mobile, Ala. The total of all species of mites totaled 25.1% of all ectoparasites.

The type locality of the rat mite is Assiut, Egypt. It is known to occur in New South Wales, Western Australia, Abyssinia, Argentina, and the North American continent. Specimens have been collected from a hotel in Betchikan, Alaska. It is said to have been recorded from 14 states in the United States. Infestations have been found in Baltimore, Md., Blue Earth, Minn., Chicago, Ill., Dallas, Tex., Ft. Worth, Tex., Laredo, Tex., Longview, Miss., Longwood, Miss., Minneapolis, Minn., New York., N. Y. Norfolk, Va., Pipestone, Minn., Sacramento, Calif., St. Louis, Mo., St. Paul, Minn., San Diego, Cal., Savannah, Ga., Washington, D. C., Wyoming, Del., and several points in New Jersey.

A description of the life cycle of this rat mite was first made by Hirst. The gravid females deposit from three to eight eggs in dark, warm, protected places, as cracks or crevices. The eggs hatch in four to eight days when the larvae start in search of a host for its blood. The mite may feed on rats, mice, domestic animals and man, although rats are usually preferred. The larvae will starve within twelve days unless a host is found. Shelmire and Dove (19) state that three or four moltings and four or five blood meals are necessary to complete the life cycle. The larvae feed at intervals of about three days. Thus, the adult stage may be reached in twelve days from the egg, a very short life cycle. The adults are so small they are hardly visible to the naked eye, and are gray to pale yellowish gray.

After hatching, tropical mites are attracted by heat. They may be found around hot water pipes, stoves, and other such places as kitchens, bathrooms, and other warm installations. The mites usually feed at night and are very active. After feeding, they retreat to cracks and crevices and other dark places until their next meal. Specimens may be picked up with a camel's hair brush and transferred to a small glass bottle having a tight smooth stopper. There are suction devices, also, to collect mites. A flashlight is a good aid in locating these mites.

Bishopp (2) has observed that most infestations occur in business sections rather than in residences. The presence of rats or mice has not always been noted but in many cases, rats and mice have been found. Man may not be attacked while rodents are on the premises as these animals supply the necessary blood meals. When the rodents have been reduced or eliminated, the mites seek other hosts and so man may be attacked. After the rodents are gone, it takes about one to two weeks for the mites to find humans.

An example of how an infestation of rats and mites work has been given by Weber (21). The basement of a department store in Chicago was infested with rats. They were exterminated after two to three weeks. Then mites attacked four women and one man, some women receiving 5 to 40 bites. Shelmire and Dove (19) report a similar case in Dallas, Texas. During three months, 19 girls working in a department store were bitten by mites shortly after a large number of rats had been trapped and poisoned.

There have been reported many other cases of serious mite infestation. Mites infested a theatre in Dallas so that a cyanide fumigation was necessary. In another case, mites caused five families to move from an apartment house. At the Baylor hospital, five nurses and 12 patients were bitten; mites being found in desk drawers and near hot water pipes. Cory (4) reports an infestation in a clothing factory. After killing the rats in this factory, the mites disappeared in three weeks. Mackie (14) found mites in an apartment house at Sacramento, Calif., that had a grocery store on the first floor. After killing the rats in the grocery and spraying to control the mites, all trouble subsided within a week.

Bites of the mite may develop into a severe dermatitis. It is said that the pale nymphs are apt to bite more frequently than the adults. The mites crawl all over the body and seem to bite the more tender skin, particularly the upper arms and legs. The sharp mouth parts of the mite cause a distinct pain with sharp itching for several hours, usually not over two days. Some persons have claimed to have developed a mild fever with general discomforture. The bites are similar to flea bites, usually grouped, as mites feed piecemeal. The primary lesions may vary from a pinhead to papules and wheals the size of a pea, depending upon the individual. Secondary infections from scratching the mite punctures may result.

The relation of mites to human disease is obscure. Some investigators think that this mite may transmit murne typhus fever to man. Dove and Shelmire (7,8) give laboratory evidence that mites can transmit this fever. In three instances, endemic typhus was transmitted from a guinea pig to rats through mite bites and in five instances, it was transmitted from guinea pig to guinea pig in the same way. Strong reports that the mite may transmit the rickettsia of endemic typhus to its egg. It would seem very likely that the tropical mite does transmit typhus fever since the recent work of Huebner, Jellison, and Pomerantz (13) demonstrated that another mite is responsible for a new disease of humans, Rickettsialpox.

There are several practical applications of the above information. First, when complaints are received as to bites being received by humans, the premises should be carefully examined for the presence of rat mites, especially if a rat or mouse infestation also occurs on which control measures are being taken.

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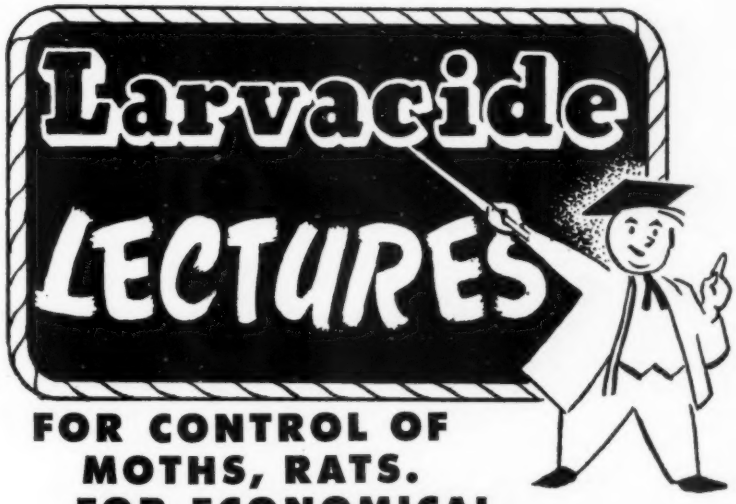

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Second, if both mites and rats are found on the premises, the safest method is to live-trap the rodents, and then remove them to a distance for disposal. In this way, mites found on the rats will not infest the premises from which they are removed.

Third, to prevent any complications when rats are dead-trapped, gassed, poisoned, or otherwise destroyed, the premises should be treated very shortly with suitable miticides.

Fourth, if mites are found on the premises, control measures should be employed independently of any rodent control as some mites may not be harboring on rats or mice.

Bibliography

1 Banks, Nathan. Acarina or mites. Zoology Rpt. 108, Bureau of Entomology, U.S.D.A. 1915. 153 pp.

2 Bishopp, F. C. The rat mite attacking man. Dept. Cir. 294. U.S.D.A. 1923. 4 pp.

3 Cole, LaMont C. & Koepke, Jean A. A study of ectoparasites in Mobile, Ala. U. S. Pub. Health Rpt. 61 (41):1469-87, 1946.

4 Cory, Ernest M. Jour. Econ. Entomology 16:226, 1923.

5 Craig, Chas F. & Faust, Ernest C. Clinical parasitology. Phila., Lea & Febiger. 733 pp. 1937.

6 Delaware Sta. Rept. Bull 235:23, 1941.

7 Dove, W. E. & Shelmire, B. Tropical rat mites, **Liponyssus bacoti** Hirst, vectors of endemic typhus. Jour. Amer. Med. Assn. 97:1506-10, 1931.

8 - - - - - Some observations on tropical rat mites and endemic typhus. Jour. Parasitology 18:159-68, 1932.

9 Ewing, H. E. The dermanyssid mites of North America. Proc. U. S. Nat. Museum 62, article 13, p. 18, 1922.

10 - - - - A manual of External parasites. Thomas, Springfield, Ill. 1929. 225 pp.

11 - - - - Early records and present known distribution in the U. S. of three recently introduced mites. Proc. Ent. Soc. Wash. 34 (2):13-6, 1932.

12 Hasseltine, H. E. Rat flea survey of the Port of Norfolk, Va. U. S. Pub. Health Rpt. 44 (11):579-89, 1929.

13 Huebner, Robert J.; Jellison, William L. & Pomerantz, Charles. IV. Isolation of rickettsia apparently identical with the causative agent of Rickettsialpox from **Allodermanyssus sanguineus**, a rodent mite. U. S. Pub. Health Rpt. 61 (47):1677-82, 1946.

14 Mackie, D. B. Cal. Dept. Agri. Bull. 25:467, 1936.

15 McIntosh, Allen. Tropical rat mite attacking man in St. Louis area. Proc. Helminth. Soc. Wash. 2(1):62-3, 1935.

16 Newton, H. D. Tropical rat mite infestation. Calif. & West. Medicine 57: 143, 1942.

17 Radford, C. D. Genera and species of parasitic mites **(Acarina.)** Parasitol ogy 35:58-81, 1943.

18 Riley, William A. The tropical rat mite, **Liponyssus bacoti**, in Minnesota. Jour. Parasitology 26(5):443, 1940.

19 Shelmire, Bedford & Dove, W. E. The tropical rat mite, **Liponyssus bacoti**; the cause of a skin eruption of man and a possible vector of endemic typhus fever. Jour. Amer. Med. Assn. 96:579-84, 1931.

20 Stewart, M. A. The tropical rat mite. Pests 7 (5):6-7, 1939.

21 Weber, L. F. Rat mite dermatitis. Jour. Amer. Med. Assn. 114:1442, 1939. Also Pests 8 (7):8, 1940.

Tentative Rules for Fumigating Structures for Dry Wood Termites

Fumigating Committee of the Pest Control Operators of California, Inc. and Fumigating Committee of the Los Angeles District of the Pest Control Operators of California working in conjunction with Los Angeles Board of Health—Dr. Uhl, Public Health Officer.

1. Turn off gas at meter.

2. Disconnect and lock externally operated switch.

3. Preparation of the building for fumigation:

a. Cover all vents, windows, doors or other openings in exterior walls with 60-lb. Granite MF wrapping paper as manufactured by the Wilson Paper Co. or equal and seal all edges to the building with tape.

b. Where exterior of building is wood or shingle sided, the entire exterior shall be covered as in paragraph (a).

c. On wood shingle or shake roofs, the fumigator shall determine if the construction is sufficiently air tight to hold the fumigant.

d. Wrapping of the projecting eaves shall be left to the discretion of the fumigator.

e. Fumigator shall be responsible to determine if any ornamental construction such as buttresses or stud and stucco walls abut adjacent property and could serve as an avenue for the fumigant to enter adjacent property. Where such a condition exists, suitable openings shall be made by removing sections of the cement plaster. Areas so opened shall be sealed as in paragraph (a.) and additional space left to provide direct access to the atmosphere for any fumigant which may penetrate the seal.

f. Warning signs shall be set in accordance with present requirements of the Structural Pest Control Board.

g. Building shall be inspected and tagged by the Board of Health having jurisdiction, if such requirement is a law.

4. Fumigation Procedure:

a. Fumigant shall be liquid HCN or proven equal.

b. The minimum dosage used shall be 1.5 lbs. per 1,000 cubic feet.

c. The maximum dosage used shall be 3-lb. per 1,000 cubic feet.

d. Fumigant shall be released in quantities not exceeding 4-lb. per 1,000 cubic feet of unimproved area volume every twenty minutes.

e. The building shall remain under fumigation for a minimum period of forty-eight (48) hours.

5. Aeration:

a. This shall be accomplished by blowers and exhausters in combinations, mounted on the exterior of the building.

b. Exhausters shall be kept in continuous operation until no trace of fumigant can be detected with suitable testing devices.

6. Preparation for occupancy:

a. Place a placard at all entrances stating the earliest date and hour when property may be safely entered.

b. Turn on gas and re-light all pilot lights.

c. Unlock and reconnect externally operated switch.

d. Follow all other normal fumigation procedures.

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Piperonyl Butoxide, a New and Safe Insecticide for the Household and Field

By WALTER E. DOVE

Among the different insecticides tested for the armed forces, the most promising for use with pyrethrum proved to be piperonyl cyclohexnone. Because of its efficiency, safety, and the fact that it was activated by small amounts of pyrethrum, extensive studies were made on the insecticidal properties of compounds that were related to it, by Schroeder, Jones and Lindquist. The results were so encouraging that similar studies were made of a related compound.

The present paper reports observations were made upon another insecticide of this group known as piperonyl butoxide. It was found to be a safe and stable insecticide that kills many species of insects at reasonably low concentrations. When it was combined with small amounts of pyrethrins, the combination afforded a rapid knockdown, a greater mortality, and a long residual action. The stability of the combination was strikingly shown by the insecticidal properties of residue that are left from applications of surface sprays.

Household Space Sprays

In household sprays, combinations of pyrethrins and piperonyl butoxide furnished an increased mortality of houseflies.

Dusts for the Household

Dusts containing pyrethrins 0.16 per cent and piperonyl butoxide 1.0 per cent have given very satisfactory control of cockroaches. The dusts were applied to floors near baseboards and on shelves, where the roaches could walk upon treated surfaces. These treatments gave a quick kill of the roaches, and remained effective for a period of 60 days or longer. The dusts were also found to be effective on tropical rat mites and household ants, and should be tried against Brown dog ticks in buildings.

Household Aerosols

The conveniences and efficiency of insecticidal aerosols have had much to do with their wide and successful uses, and it is expected that piperonyl butoxide will add much to the popularity they have enjoyed. Combinations of pyrethrins and piperonyl butoxide, at a proportion of one part of the former to eight parts of the latter, by weight, provide equal knockdown and greater mortalities of insects than the formulae used in the past. Also this combination now makes it possible to eliminate certain chlorinated hydrocarbon insecticides or to greatly reduce the quantities formerly employed. This means that auxiliary solvents required for such insecticides may be reduced or eliminated. It means that there will be less opportunity for corrosion or clogging of the nozzles of the dispensers. It means also that the user will avoid much of the irritation and odor that are inherent in some solvents that have been used in aerosols.

When the new aerosols are used at the rate of 3 grams per 1,000 cu. ft., they are very effective against such insects as flies, mosquitoes, fleas, ants, clothes moths, sand flies, gnats, and leaf hoppers. Repeated uses tend to form residues that are capable of killing such insects. Increased dosages are applied in the regular manner for killing such insects as bed bugs and cockroaches. Such crawling insects may be killed conveniently by directing the aerosols into their hiding places.

Domestic Animals

Emulsions or light oil sprays containing piperonyl butoxide and pyrethrins, were applied to dairy animals in barns just as cattle fly sprays are used by a dairy man. The treatments of 2 ounces per animal gave complete repellency to horn flies for 4 hours. Horn flies and mosquitoes were killed by direct application of the sprays, also by the residues that formed from repeated use on the hair of the animal. Greater concentrations in oil or emulsions killed stable flies that attempted to feed on treated animals. Even stronger emulsions protected livestock from the large horse flies (**Tabanus**) and deer flies (**Chrysops**) for periods of 48 hours or longer. In one field test in Kansas, with an exceptionally strong emulsion, the livestock owner reported that his animals were protected against such flies for approximately two weeks.

Toxicity

Piperonyl butoxide was found to be safe, and free of any normal hazards of toxicity. It was well tolerated in large quantities by warm blooded animals. In combination with pyrethrins, the concentrated solutions were found to be no more toxic to laboratory animals than the base oils used in making the solutions. The MLD 50 of the compound for rabbits appears to be about 5.0 ml./kg. The MLD 50 for rats and dogs is between 7.5 and 10.0 ml./kg. This means that a single dose necessary for an MLD 50 for man would be somewhat in excess of one pint of piperonyl butoxide.

Probable Uses

A wide usage is indicated for this new insecticide. Because of its efficiency and freedom from hazards of toxicity to warm blooded animals, combinations of piperonyl butoxide and pyrethrins will undoubtedy find extensive uses for safely controlling insect pests about food processing plants, in food establishments, in the household, and on crops that serve as foods for man or domesticated animals.

Senate Passes Label Act

Washington—The Senate passed and sent to the White House legislation requiring protective labeling and other precautions in the use of insecticides and other poisons.

Announces DDT Price Reduction

A horizontal reduction of five cents a pound in its price schedule for DDT, effective immediately, was announced on August 4 by Monsanto Chemical Company. DDT is marketed under the trade name Santobane.

The reduction is coincidental with initial operation of new and larger facilities for the manufacture of Santobane at the company's Monsanto, Ill., plant. Monsanto has been manufacturing Santobane at its John F. Queeny plant, in St. Louis, since June, 1944, but lower costs are anticipated in the Monsanto, Ill., operations, where the company also manufacturers chlorine and sulfuric acid.

V. E. Williams, director of sales for the company's Organic Chemicals Division, pointed out that increased volume and lower costs have resulted in successively lower prices from orginial quotations of approximately $1.60 a pound in 1944.

New Santobane prices, as reported by Williams, are: 37½ cents per pound for minimum carlots and over; 40 cents per pound for lots of 2,000 pounds, with both prices inclusive of 100-pound fiber drums; 43 cents per pound for less than 2,000 pounds in 100-pound fiber drums; and 48 cents per pound for less than standard containers, f.o.b. Monsanto, Ill., freight equalized with recognized competitive producing points.

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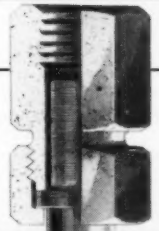

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Congratulations

Cigars have been going around with the announcement of the birth of PAULA FELICE WEISBURGER, first baby in the household of Le Roy Weisburger of the insurance firm of B. & D. A. Weisburger, N. Y. Paula arrived on July 8 and weighed 7 pounds, 6 ounces.

A Future PCO

On July 31, Richard Lincoln Forde arrived on the stage of action, weighed 8 lbs. 6 ozs. This is the second son of E. L. and Mrs. Betty Jane Forde, Honolulu, Hawaii.

It is contemplated that both boys will enter Purdue in the fall of 1967 to prepare to become PCO's like their father and grandfather.

Mother is doing fine and we hope that the father is doing likewise.

Ernest is owner of the Chemtox Chemical Co. in Honolulu.

Best wishes.

Sally Eldredge Watt

Yes Sir, once again Grandma and Grandpa Eldredge of Waltham, Mass., tell us that a second grandaughter has arrived. Born to Barbara and Robert Watt on July 28th was Sally Eldredge Watt. Weighing in at 7 pounds and 3/4 ounces proves how careful everyone is to get the exact weight. Congratulations to the entire farmily.

West Coast Trip of Dr. Thos. E. Snyder and "Bill" Buettner, NPCA Secretary

The Omaha, Nebr., PCO's headed by NPCA Director Joe Hahne and John P. Linn were some twenty strong with their wives to greet Dr. and Mrs. Snyder and the Buettners when the train rolled into the station at nearly 10 p. m. the night of July 25th. This friendly demonstration was much appreciated and even allowed for a hurried meeting for more than 20 minutes to discuss a few highlights of the industry. Even the train conductors and bystanders were interested in seeing a new fly-control device.

Those who went to the station were: Mrs. Levenson, Levenson Exterminating Co.; Harley C. Mills, Mills Evterminating Systems; Frank Ritcher, Wood Treating Co., St. Louis, Mo.; Joseph Hahne, Smith Exterminating Co.; Charley Starkey, Federal Termite Control Service Co., John P. and Mrs. Linn, Industrial Pest Control, Inc.; Jo. A. Robar, Roy Anderson, Robert McCord, Robar Pest Control Co., Sioux City, Iowa.

The California Delegation headed by Regional Vice President V. H. Montgomery and a host of friends including State President Charles Delk, made the Snyders and Buettners at home immediately upon their arrival in Los Angeles, Calif., on July 27. From that point on it was mainly a matter of the ladies shifting for themselves and the men keeping busy with meetings with exception of joint dinners and a trip to Catalina Island for almost a week. J. Wilfred Gunn turned over his Buick to Helen Buettner which made it possible for her to visit many places and friends.

Talking About Wilfred Gunn, he was everywhere in evidence making certain that every detail would run smoothly. Wilfred made it clear in his several remarks during the meetings that he appreciated the splendid support that so many gave in making the meetings and demonstrations so successful. To cap off what was a busy several weeks preparing for the meetings and the strenuous week of meetings, he hopped to San Francisco on August 5th to attend the dinner meeting of the Northern PCO's at the Palace Hotel. The ladies committee with "Kathie" Hoddel certainly put on a splendid program for the ladies in Los Angeles.

Hugh Smith, who is without question an outstanding fumigator, claims he does not know too much about termites but it would be a lesson for many termite operators throughout the nation to have Hugh talk to them about termites. To the credit of the operators on the west coast, they know their fields well—at least those who were attending the meetings. **Chet Pencille** could rightfully smile as he talked about the possibilities of fumigations for kalotermes because as far back as 1940 he was harping on that subject. Industry demonstrated that hard experience and testing is doing much practical research.

Peggie and Bob Loibl at Rancho Del Arbolinda proved why everyone can be "young" again. What a location, what flowers, what eats, what hospitality! 'Tis said that Bob has become the "Cucumber King." The week-end of August 2-3 allowed for that "perfect break" and freedom of care where the fourth "unusual" situation had no effect. Irene and Jess Miller, J. Wilfred Gunn and Bob Loibl, Jr., drove the party to Encinitas.

Lest it be forgotten each of the four trips that "Bill" Buettner has made to the west coast allowed for the word "unusual" to be spoken truly. Will the old-timers ever forget the earthquake, goat hunt, ripe olives off the trees, and pure Carmel water in 1937; and two years later in 1939 when trees were falling everywhere in Pasadena because of the "young zephyr winds and rains"; in 1941 when the citrus crop suffered the cold weather and in this present year when there was the "hottest weather ever"? Call Ripley to figure out what may take place in 1949 when there will be held the NPCA Annual Convention in Los Angeles. Plan now to attend. Over 900 are expected for the Annual Banquet in the Bowl of Hotel Biltmore.

The Montgomerys—Mildred and Monty— did not relax for a moment from the arrival on July 27th until the visiting party were sent on their way from Reno on August 7th. The dinner and open house at the Montgomerys August 4th followed with meetings in San Francisco and termite inspections in the Berkeley area only to carry on with the beautiful ride through Sacramento Valley via Lake Tahoe so as to arrive in Reno, Nevada, for the seventh wedding anniversary of Helen and Bill Buettner will become happy memories. There may be many seeking divorces in Reno but for them it was a big dinner party just before boarding the train.

Then Al Russell in Reno, Nev.—Are there any other operators in Nevada? A specialty for Al Russell—and we forgot to count the number of sons and daughters and children—is that of flame proofing. Here again it is said that a law was passed making it mandatory for flame proofing to be done.

An overnight visit with "Bill," Jr., at University of Wyoming in Laramie, Wyo., indicates "Bill," Jr., will be ready to continue his college training at his dad's alma mater, Dartmouth College in Hanover, N. H., this fall.

On to Denver where it was a pleasure on another hot night to be met by Maurice and Clara Oser who became the "guides" for the travels around Denver. Visitation to the Julius Hyman Company plant and Wildlife Laboratory of the U. S. Fish and Wildlife Service allowed for splendid discussions in the interests of our industry.

Chicago cannot be forgotten either in that on the way out to the west coast Morton Prescott sensed we were coming through and met us at the train to make certain we had breakfast before rushing along and in a couple hours' stopover on the return trip Helen and Norman Dold rushed us to the Illinois Athletic Club for luncheon before the homeward treks, the Snyders heading for Washington and the Buettners for New York. For the sake of those who may be concerned, young Teddy Buettner, aged 4, took the entire trip in stride.

So much more could be written and many, many persons' names have not been mentioned, but to one and all go our heartfelt thanks as in this way we have merely attempted to touch upon a few of the combined business and social events but with an eye single to gathering information which by way of service letters and continued contacts will accrue to the benefit of the industry. Several feature articles will give details about the demonstrations and meetings.

Wayne K. Davis and Elmer Pearson did an outstanding job in preparation for the termite inspections for subterraneans—complete charts and explanations. Prof. E. O. Essig sacrificed part of his vacation to join the group crawling under buildings. By the way, it is assured the Pacific PCO Conference will probably be held February 18-19-20 at the University of California at Berkeley.

Hutchings Joins Hyman

Announcement is made by Mr. J. Newton Hall, Sales Manager of Julius Hyman & Company, Denver, Colorado, of the appointment of Mr. Floyd Hutchings as field entomologist. Mr. Hutchings is a graduate of the University of Washington, Seattle, where he specialized in entomology under Dr. M. H. Hatch, and following his discharge from the Navy, resumed his studies in entomology and plant pathology at Oregon State College, Corvallis, Oregon.

Hyman & Co. Names Otis

Mr. Stephen Otis, who has been connected with a Chicago chemical manufacturer for number of years, has joined the Sales Department of Julius Hyman & Company, Denver. The ennouncement, made by Mr. J. Newton Hall, Sales Manager, goes on to say that Mr. Otis will be assigned to the midwest territory where he will assist

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"Welcome Home"

Such was the ovation that Viv Crichton of Boracura, (N. Z.) Ltd., Wellington, New Zealand, received recently from his many friends when he arrived home from an extensive trip in America.

Says Mr. Crichton:

"Traveling over vast areas and through the great cities of America was an experience I shall never forget. The seemingly endless ribbons of highways with the variety of ever-changing conditions and scenes, the density of traffic everywhere, and the teeming millions of people going about their business in an atmosphere of what appeared "super efficiency" left a lasting impression on me.

"My search for knowledge brought me into contact with many different nationalities and American citizens in all classes of life. I was very sincerely impressed by their genuine desire to make the brief associations as pleasant and instructive as possible. No request for information was ever evaded or denied. The most intimate details connected with any business was exposed for the asking. It must be realized that in many instances the individuals concerned did not expect any compensation for the time and effort devoted to me.

"The spirit of cooperation appeared to prevail everywhere. The mere fact that the industry I was engaged in was closely associated with their own particular type of business was sufficient reason for their interest. Any assistance that could be given was regarded as a benefit to the industry as a whole. Their object is to place the pest control business on as high a plane as possible. The complete cooperation which exists between the recognized firms is evidenced everywhere. There are very few new developments in the industry which are not quickly made available to everybody concerned. This policy has no doubt greatly enhanced their standing with the public and all authorities concerned."

We are glad that Mr. Crichton was so profoundly impressed with what is taking place in our country. We certainly are pleased to know that he received such fine cooperation from those he visited. Come again, "Viv." Best wishes!

Mr. & Mrs. Barnet S. Oser

Mr. & Mrs. Barnet S. Oser of Denver, Colorado celebrated their Golden Wedding Anniversary on Sunday, August 17th. The family and many friends made festive occasion of the event at a dinner which was held at the Wolhurst Club in Denver. The Osers' are not newcomers to our pest control industry in that Maurice Oser operates the Oser Exterminating Company in Denver while Past President of the NPCA, Ted Oser is an official of the Orkin Exterminating Co. of Atlanta, Ga. Other relatives are active in the pest control industry also. And as for Papa Barnet, let it be made a matter of record that he also is very active in the business of the Oser Exterminating Co. in Denver. It was "Bill" Buettner's pleasure to observe Papa Barnet Oser busy on a termite job on the recent visitation in Denver, later to join with the family at a picnic lunch. Congratuations to Mr. and Mrs. Barnet Oser and may they have many more years of happy life together.

Charles Pomerantz

Charles Pomerantz, Bell Exterminating Co., N. Y., was in Hamilton, Montana, in August where he attended the Conference of the United States Public Health Service Lab. on diseases of nature communicable to man. Mr. Pomerantz spoke on Rickettsialpox, causative mite which he discovered.

Two Solvay Branches Acquire New Quarters

Solvay Sales Corporation, New York, has announced that the New Orleans and Houston branch offices have moved into new quarters in their respective cities. The New Orleans branch is now located at 1107 Pere Marquette Building, Baronne Street, New Orleans 12, Louisiana, and the Houston office of the firm is now established at 1313 City National Bank Building, 921 Main Street, Houston 2, Texas.

Uses For Empty Discoid Cans

Probably PCO's find many uses for empty Discoid cans, being very sturdy containers —uses such as storing of exterminating powders and similar materials. One PCO writes: "After using Discoids, we cut the other end out of the empty can and split said can down the seam wall. This makes an excellent sheet of heavy metal for use in termite shields. We also find that these extra sheets of metal do an excellent job of rat-proofing."—From "Fumigation News."

New Quarters

California Termite Control Co., Inc., of Los Angeles, Calif., have moved into their new offices at 433 North Hoover St. Best wishes.

New Chemicals from Oil-Nitrogen

A number of new chemical products have resulted from a new process of combining petroleum products with nitrogen, the Chicago section of the American Chemical Society was told last night.

Among the products have been a number of solvents and synthetic cleaners, Prof. H. B. Hass of Purdue University said.

Compounds related to DDT have recently been synthesized from nitromethane, the simplest of the new chemicals, he declared.

Mouse Not Guilty

Hugo F. Saar, sixty-six, of Greenwood, R. I., pleaded not guilty of driving to endanger on July 3, but blamed a hitch-hiking mouse when arraigned in 4th District Court today. He was carrying a load of hay and grain in his truck and a field mouse came out of the load and started up inside his trouser leg. He swatted at the mouse and that was how he lost control of his truck so that it veered off the road and struck a child, he told Judge James W. Leighton. The judge responded "thirty-five dollars and costs."

Philadelphia Kills Pigeons

Herbert M. Packer, chief of the division of housing and sanitation of the Department of Public Health, Philadelphia, Pa., announced on Aug. 2, that extermination of more than 12,500 pigeons trapped in the central city area during the last twenty-one months has eliminated the nuisance of large flocks of the birds in Philadelphia. But a serious problem still remains in educating the "kindly but misguided persons" who are scattering grain in the streets for the pigeons, Mr. Packer said.

Dead Mouse Ends Tale of a Tub

London—Mrs. Mary Beagleman turned on her bathtub tap, then saw a mouse in the tub. She went to the apartment house to get the porter.

The elevator carrying them upstairs stuck.

A half-hour later firemen freed the couple in the elevator, waded through the flooded bathroom and carried away the mouse.

It had drowned.

Japanese Beetles To Be Worse Next Year, Says Expert

If you think the Japanese beetles are bad now, wait until next year. That said John C. Schread of the Connecticut Agricultural Experiment Station on July 24, is when Connecticut's worst infestation in several years will be at its peak. The comparatively mild weather during the past winter was highly favorable to the beetle population Schread said.

5 New Insects Found in Conn.

Among new insects which have appeared in recent weeks in Connecticut are five which have entomologists at the Connecticut Agricultural Experiment Station guessing, according to an article by Paul V. Beckley in the N. Y. Herald Tribune. All are either new species or species new to Connecticut, none have been thus far identified, and the probable seriousness of their depredations is as unknown as was that of the Japanese beetle when it migrated here in 1916.

Dr. Carl Parsons, assistant entomologist at the station, described the five on July 4 as a green weevil that feeds on the roots of arbor vitae; two black weevils, both new to this state, and both feeding on white pine; a scale insect, resembling a small puff of wool, that feeds in the soft wood just under the bark of red pine, and a variegated gray and white moth with a wing spread of not more than a quarter-inch which eats the leaves of arbor vitae, spinning webs among them.

Encephalitis

Drs. W. C. Reeves, W. McD. Hammon, D. P. Furman, H. E. McClure and B. Brookman, all of the University of California, have discovered that mites on wild birds, such as yellow-headed blackbirds and English sparrows, carry the virus that causes encephalitis, commonly called sleeping sickness. Mites taken from bird's nests in Kern County, Calif., carried the virus of western horse encephalitis. Guinea pigs, hamsters and mice got the disease when injected with this virus from the mites. Details are reported in Science.

Anti-Jazz

"One of New Orleans' Carnival clubs recently discovered that bats had taken up living quarters in the magnificent papier mache floats which were being stored until Mardi Gras. Experts were called in and the chemicals they applied were of no avail. The Carnival officials were reconciling themselves to having to parade through New Orleans' streets with bats roosting on the the Carnival King's scepter. Then the Louisiana Department of Wild Life & Fisheries offered a suggestion-tin horns, dishpans and bells, because bats hate noise. The noise-makers were used, but they only made the bats restless. Finally a jukebox was installed—and the wind instruments of Harry James, Artie Shaw and Benny Goodman chased the bats."

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Bitten

Mrs. Herman Goering, wife of the late unlamented No. 2 Nazi, who herself is awaiting trial as a Nazi profiteer, entered the concentration camp hospital at Augsburg Germany, camp hospital, because she is suffering from rheumatic fever. While in the hospital, which consists of wooden barracks, she was attacked recently by a rat, which she said, tore the skin and injured ligaments in her ankle.

The women of the camp were extremely upset about the presence of rats and bugs. The camp authorities—technical responsibility for the camp administration rests with Germans—said they had done their best by spraying DDT to rid the camp of bugs but that they had had considerable difficulty owing to the fact that insects were hidden in the rotten wood of the barracks.

Air-Conditioned Starlings

Poughkeepsie, N. Y.—City officials have received almost as many suggestions for getting rid of the local starlings as there are starlings in the trees of Park and Allen Places, but the only one tried so far didn't work, reports the N. Y. Herald Tribune. Firemen using high-pressure streams of water made a night attack on the birds, but as soon as the hoses were turned off, the starlings returned to their cooled-off bowers—and brought their relatives with them.

New Use for DDT

When the good ship Culicide, acquired by the city of Seattle for use in the spraying of mosquito areas in the city's navigable waters, was christened. Mrs. William F. Devlin, the mayor's wife, did the honors with a bottle of DDT, according to Chem. & Eng. News.

The New York City Budget

The New York City Budget for the 1947-1948 Fiscal Year is $1,031,961,754.73. Thirty dollars of this sum is for a pair of electric clippers to shear mice, rats and rabbits used by the Dept. of Health in antitoxin experiments.

May Flies Turn Brakeman

Swarms of May flies, according to a news item datelined Peach Bottom, Pa., July 21, halted three freight trains pulled by 350-ton electric locomotives last night on the Pennsylvania Railroad between Port Deposit, Md., and Harrisburg, Pa. Millions of insects covered the boxcars, clogged overhead power apparatus and short-circuited electric motors. Finally three steam locomotives were summoned to push the trains to their destinations.

Colonel Philipp Named Member Smoke Control Unit

Col. Leopold Philipp, president, Disinfecting & Exterminating Corp., N. Y. C., has been named a member of the "Borough Representatives of the Committee on Public Co-operation for Air Pollution Abatement" (in N.Y.C.). He will represent the Borough of Manhattan. The smoke control unit was established by the Health Departmen as part of its Bureau of Sanitary Engineering. It is the Department's aim to obtain compliance with the Sanitary Code regulations regarding air pollution.

Carbon Disulfide Safety Data Sheet

The Manufacturing Chemists' Association announces the publication of Chemical Safety Data Sheet SD-12 on Carbon Disulfide; the twelfth in the series of chemical product safety manuals being prepared by them. Designed for supervisory staffs and management, the manuals concisely present essential information for the safe handling and use of chemical products.

Each manual sets forth lucidly the important physical and chemical properties of the product; usual shipping containers and methods for their unloading and emptying; container storing and handling; requirements for caution labels; and recommended personal protective equipment. Health Hazards and Their Control are covered authoritively in a section prepared by the Medical Advisory Committee of qualified physicians and toxicologists.

Chemical Safety Data Sheet SD-12 "Carbon Disulfide" may be obtained at 20 cents per copy from the Manufacturing Chemists' Association, 608 Woodward Building, Washington 5, D. C. Send remittance with each order.

Sphagnum Moss Harbors Termites

"As a matter of purely scientific interest it is interesting to learn that termites (**Reticulitermes** sp.) have been collected recently in sphagnum moss at Moose Pass, Mile 29, Alaska Railway, Kenai Peninsula. This is 60° 30' N. and the previous most northern record was Quesnel Lake in British Columbia, L. 53° N. Only workers were collected so a specific identification could not be made."

In Cincinnati, the motorman of a trolley car was thrown into a panic when a swarm of bees invaded the car, which hit an automobile, which hit an other automobile, which hit another automobile. In Memphis, a swarm of bees descended on a band concert at the Cotton Carnival and, after terrorizing the audience, was carried off on the person of a patrolman, who received six stings. In Chattanooga, a swarm settled in the eaves of a house belonging to a lady, who telephoned, successively, to the Police Department, the Department of Buildings, the State Agriculture Department, the Health Department, the Fire Department, the Police Department again, and was unable to get action. In Milwaukee, a lone bee flew into the coupe in which Mr. and Mrs. Gunther Glister were driving to work. Mr. Glister lost control of the car, which crashed into a hydrant, and Mrs. Glister, whose given name is Uelah, lost a tooth.

"The New Yorker"

The "Why of Salt Tablets

It is important that preventive measures be taken during the coming sizzling months to ward off heat exhaustion and that "run down" feeling among workers. More often than not, the fatigue is the result of a salt deficiency in the body, caused by excessive perspiration.

Application of the knowledge obtained by industrial physicians in their study of the causes of heat sickness produces remarkable results.

A worker may lose as much as 30 to 45 grains of salt per hour through the pores. Average individual losses run between 45 to 60 grains in a 24-hour period. This solid mineral component of perspiration must be replaced if the body is to maintain optimum health inasmuch as it represents an important fraction of the three ounces of salt present in the normal system.

When workers take a salt tablet several times during a working period, they replace the lost salt and the body is able to function at its greatest efficiency.

Textile Safety

National Sanitary Supply Association

The Central Regional Meeting of the National Sanitary Supply Association will be held Sept. 11th and 12th, Fort Shelby Hotel, Detroit, Michigan.

New Quarters

The Howell Termite Control Co., of Houston, Texas, have moved into their new office and factory, 2016 W. Alabama. Best wishes.

Pest Control Supply Company

Pest Control Supply Company of 459 N. Western Ave., Los Angeles, Calif. is run by Robert Loibl, Jr. and is specializing in maintaining a complete line of supplies for pest control establishments. Call on them for any equipment.

Benzene Hexachloride

Benzene Hexachloride. A new, 8 page folder gives a short resume of the advantages and limitations of this, one of the newest of the synthetic insecticidal materials. The booklet includes a summary of the large volume of field work done to date in tabular form showing insects, applications, and results.

Available from R. J. Prentiss & Co., Inc., 110 Williams Street, New York 7, N. Y.

Enemy Aliens

Until recently enemy aliens have been entering the United States by the boatloads! Mosquito carriers of dengue fever and filariasis from the Pacific Islands have been found hiding, hundreds of thousands strong, in ship after ship arriving on the West Coast. During routine inspections the stowaways were found in shell cases, amphibious vehicles, tires, and other equipment being returned from the New Guinea area. According to the Military Surgeon the mosquitoes were breeding heavily in fresh water carried in motor vehicle and aircraft tires, but liberal spraying of DDT in kerosene seems to have pretty well foiled their invasion plot.

Here and There in the News

A group of General Electric engineers have developed a device for taking the temperature of grasshoppers.

A way to mothproof wool while still on the sheep was perfected in Idaho.

An Australian has invented a beer mug with a built-in fly swatter.

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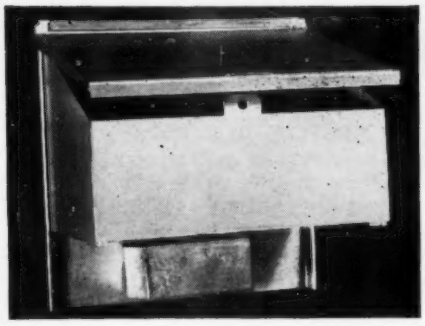

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Additional Patents Relating to Pest Control

By DR. R. C. ROARK

2,416,263 (Feb. 18, 1947; appl. March 18, 1944). PENTAHALOPHENOXYALKANOLS. Clinton W. MacMullen, Syracuse, N. Y. Rohm & Haas Company, Philadelphia, Pa. These alcohols are effective against fungi and also against insects.

2,416,265 (Feb. 18, 1947; appl. Oct. 9, 1943). AMINO ETHERS AND METHOD OF PREPARING SAME. Clinton W. MacMullen and Herman A. Bruson, Philadelphia, Pa. Rohm & Haas Company, Philadelphia, Pa. The amino ethers of this invention may be used as disinfectants, bactericides, wetting agents, detergents insecticidal preparations, fungicides, etc.

2,416,309 (Feb. 25, 1947; appl. Aug. 29, 1941). ALKYLAMINE SALTS OF DINITROPHENOLS. John N. Hansen and Frank B. Smith. Midland, Mich. The Dow Chemical Company, Midland, Mich. The patentees claim the normal octylamine salt of 2.4-dinitro-6-cyclohexyl-phenol. The alkylamine salts of dinitro-phenols are valuable as parasiticidal toxicants and may be applied to growing vegetation in the amounts required to control infestations of many mite, insect, and fungus pests without materially injuring the host plant.

2,416,522 (Feb. 25, 1947; Appl. Oct. 30, 1943). N-ALKYBENZAMIDE AND PYRETHRUM INSECTICIDES. Samuel I. Gertler and Herbert L. J. Haller, Washington, D. C. United States of America, as represented by Claude R. Wickard, Secretary of Agriculture. A method of destroying insects consists in cantacting the insects with a spray composition comprising a fluid carrier having dissolved therein N-butylbenzamide and pyrethrins.
2,416,719 (Mar. 4, 1947; orig. appl. July 31, 1940. Divided and this appl. March 26, 1943). SPRAY GUN. Harry C. Stockdale, Ravenna, Ohio. Food Machinery Corporation, San Jose, Calif.

2,416,920 (Mar. 4, 1947; appl. June 8, 1944). POWDER DUSTER. Charles W. Hawthorne, Conneautville, Pa.

2,416,923 (Mar. 4, 1947; appl. Aug. 30, 1943). SPRAY GUN. Alexander F. Jenkins, Baltimore, Md. The Alexander Milburn Company, Baltimore, Md.

2,417,059 (Mar. 11, 1947; appl. Mar. 19, 1946). PRODUCTION OF DICHLORODIFLUOROMETHANE. John D. Calfee, Manhasset, N. Y., and Lee B. Smith, Woodbridge, N. J. General Chemical Company, New York, N. Y. The patentees claim the process which comprises heating ethylidene fluoride at temperature not less than 550 degrees C. and not more than 900 degrees C. in the presence of at least sufficient chlorine to form difluorodichloromethane.

2,417,601 (Mar. 18, 1947; appl. July 10, 1944). DEVICE FOR KILLING RODENTS BY ELECTRICITY. Wilbur E. Lake, Fostoria, Mich.

2,417,635 (Mar. 18, 1947; appl. Aug. 23, 1943). REFINING OF CRUDE ACRYLONITRILE. Harold S. Davis, Greenwich, Conn. American Cvanamid Company, New York, N. Y.
2,417.916 (Mar. 25, 1947; appl. Oct. 31, 1941). METHOD OF MOTHPROOFING PILE FABRICS. James N. Dow, Longmeadow, Mass. Bigelow-Sanford Carpet Co., Inc., Thompsonville, Conn. This invention provides an economical treatment for impregnating all of the pile yarn, including the tuft and base portions thereof, of a continously advancing web of fabrics with moth proofing agents of the substantive type which chemically combine with the wool molecule.

2,418,071 (Mar. 25, 1947; appl. Aug. 19, 1942). PROCESS OF TREATING ANIMAL FIBERS AND PRODUCTS THEREOF. Milton Harris, Bethesda, Md., and Wilbur I. Patterson Chagrin Falls, Ohio, Textile Foundation, Washington, D. C. The patentees claim the process of treating wool to render it resistant to moths and felting which comprises subjecting the wool to the action of a reducing agent selected from the group consisting of lower alkyl mercaptans thioglycolic acid and beta-mercaptoethanol while maintaining the pH of the reduction below about pH 9 until at least about one-third of the disulfide linkages of the wool have been converted to sulfhydryl groups, then treating the wool at a pH between pH 7 and pH 9 with a compound selected from the group consisting of substituted and unsubstituted alkyl monohalides to convert the sulfhydryl group into thioethers

2,418.339 (Apr. 1, 1947; appl Feb. 28, 1942). GAS PURIFIER AND STERILIZER. Karl Ehrgott, Baltimore, Md. Westinghouse Electric Corporation, East Pittsburgh, Pa. Air is sterilized with ultraviolet radiations.

2,418,458 (Apr. 8, 1947; appl. June 12, 1943). PEST CONTROL. Euclid W. Bousquet, Wilmington, Del. E. I. du Pont de Nemours & Company Wilmington, Del. A method of insect control comprises contacting the insect with a bi-molecular condensate obtained by condensing two mols of a keto-enol and two mols of a phenol having a replaceable ortho hydrogen with the splitting off of two mols of water. A suitable compound is 2'hydroxy-2,4,4,7,4'-pentamethylflavan.

2,418,459 (Apr. 8, 1947; appl. June 12, 1943). PEST CONTROL. Euclid W. Bousquet, Wilmington, Del. E. I. du Pont de Nemours & Company, Wilmington, Del. A method of insect control comprises contacting the insect with the bi-molecular condensate of acetone and m-cresol said bi-molecular condensate being characterized by molecular weight corresponding to two mols of acetone, plus two mols of cresol minus two mols of water, and by cryptophenolic properties.

2,418,49 (Apr. 8, 1947; appl. June 20, 1944). 2-ALKOXYMETHYL MERCAPTO THIAZOLES AND THIAZOLINES AND A PROCESS FOR PREPARING THE SAME. William James Burke, Marshallton, Del. E. I. du Pont de Nemours & Company, Wilmington, Del. The patentee claims 2-alkoxymethymercaptothiazolines. A process for preparing these new heterocyclic compounds comprises reacting, in the presence of an acidic catalyst, formaldehyde and an alkanol with a heterocyclic compound having a thiol group attached to the 2-carbon atom of a thiazoline ring. The products of this invention are of interest as pesticides.

2,418,878 (Apr. 15, 1947; appl. Oct. 27, 1943). MEANS FOR DIFFUSING REPELLENTS. Robert H. Harkins, Mount Vernon, N. Y . A practical application of the novel receptacle or diffuser is in the gradual dissipation of volatile liquid repellents of animal, bird and insect life.

2,418,959 (Apr. 15, 1947; appl. Dec. 20, 1943). ESTERS OF-CYANOGUANY-LIMINODITHIOCARBONIC ACID. Jack T. Thurston ad Donald W. Kaiser, Riverside, Conn. American Cyanamid Company, New York, N. Y. One of the esters claimed is the dibenzyl. These esters are useful as insecticides.

2,419,073 (Apr. 15, 1947; appl. Jan 30, 1943). METHOD FOR CONTROLLING PARASITES, IN SOIL. Oscar H. Hammer South Haven, Mich. The Dow Chemical Company, Midland, Mich. A method for preventing the attack of growing plants by borer and soil organisms includes the step of applying in contact with the soil and adjacent to the plant a composition comprising a volatile liquid halohydrocarbon dispersed in and on a coarsely subdivided solid carrier the average particle size of which is at least 1/64 inch in diameter. Volatile liquid organic fumigants which may be employed are ethylene chloride, propylene chloride, isopropyl-benzene, ortho-dichlorobenzene, beta, beta'-dichloro-diethyl-ether, tetrachloroethylene, monochlorobenzene, carbon tetrachloride, chloroform, trichloroethylene, chloropicrin, a solution of methyl bromide in ethylene chloride-carbon tetrachloride mixture etc.

2,419,191 (Apr. 22, 1947; appl. May 14, 1945). STERILIZING RACK. Gustave A. Anderson, Chicago, Ill. Rite-Way Products Co. Chicago Ill. This invention relates to racks of the type used for supporting the test cups and associated claw connection of a milking machine, particularly during sterilization.

2,419,212 (Apr. 22, 1947: appl. Oct. 7, 1944). REFORMED HYDROCARBON WOOD PRESERVING IMPREGNANT. Jacquelin E. Harvey, Jr., Washington, D. C., and Robert H. White, Jr., and Joseph A. Vaughn, Atlanta, Ga. One-half to said Harvey and one-half to Southern Wood Preserving Company, East Point, Ga. The patentees claim as a wood preserving impregnant a reformed petroleum oil boiling preponderantly between 210-355 degrees C., characterized at least 70 per cent of materials of ring structure content and at least about 15-20 per cent of residue above 315° C., the fraction 315-355 degrees C., of which has a specific gravity falling between the limits of about 1.1175-1.3888.

2.419,225 (Apr. 22, 1947; appl. Oct. 14, 1947). HYDROGEN CYANIDE RECOVERY. John Mitchell, William H. Hill, and Herbert A. Gollmar. Pittsburgh, Pa. Koppers Company, Inc. The present invention relates to the separation of a mixture of hydrogen sulphide and hydrogen cyanide into its constituent gases.

2,419,931 (Apr. 29, 1947; appl. Nov. 30, 1944). METHOD OF PRODUCING MAGNESIUM CYANIDE. Albert R. Frank, New York, N. Y., and Robert B. Booth, Springdale, Conn. American Cyanamid Company, New York, N. Y. A method of producing magnesium cyanide includes the steps of bringing together magnesium metal and hydrocyanic acid in the presence of liquid ammonia, separating the thus formed magnesium cyanide ammoniate from the liquid mixture, and deammoniating the magnesium cyanide ammoniate. Magnesium cyanide is adapted for fumigation for the control and extermination of insects and allied pests.

2,420,223 (May 6, 1947, appl. March 21, 1944, in Great Britain Jan. 20, 1944). ATOMIZER. William Brewer Edmonton, London, England—Sparklets Limited, London, England.

2,420, 271 (May 6, 1947; appl. May 18, 1944). INSECT REPELLENT COMPOSITION. Bernard V. Travis and Howard A. Jones, Orlando, Fla., dedicated to the free use of the People in the territory of the United States. An insect repellent composition comprises p-tso-propylphenylethyl alcohol incorporated in zinc oxide in such amount as to form a paste-like composition.

2,420,295 (May 13, 1947; appl. Aug. 9, 1944). 4,4'-DICHLORODIPHENYL 1,1,1-TRICHLOROETHANE DISPERSED IN POLYVINYL ACETATE. Gordon F. Biehn, Hockessin, and James E. Kirby, Wilmington, Del. E. I Du Pont de Nemours & Company, Wilmington, Del. A composition of matter comprises a toxicant containing 4,4'-dichlorodiphenyl-1,1,1-trichloroethane (DDT) as an essential active ingredient dispersed in an aqueous solution of a water-soluble hydrolyzed polyinylacetate.

2,420,568 (May 13, 1947; Appl. Oct. 23, 1944). RODENT AND INSECT POISON. E. Francis Sennewald, St. Louis, Mo. A poison bait for rodents and insects comprises a bait material and a solution of arsenic trioxide in a polyhydric alcohol selected from the group consisting of mannitol and sorbitol.

2,420,723 (May 20, 1947; appl. May 15, 1945). ELECTRIC TRAP. Harry L. Ratchford, Muncie, Ind.

2420,809 (May 20, 1947; appl. June 30, 1942). ACTIVATORS FOR TERPENE THIOCYANOACYLATE INSECTICIDES. Joseph N. Borglin, Wilmington, Del. Hercules Powder Company, Wilmington, Del. An inescticide composition comprises pyrethrum, a terpene thiocyanoacetate, and paratertiary butyl catechol.

2,420,928 (May 20, 1947; appl. June 2, 1943). DIALKOXYARYL TRICHLOROMETHYL METHANE COMPOUNDS AS INSECTICIDES. Euclid W. Bousquet, Wilmington, and Avery H. Goddin, Newark, Del. E. I. du Pont de Nemours & Company, Wilmington, Del. A fly spray composition consists essentially in a fly spray base hydrocarbon solvent containing a toxic amount of di(para-methoxyphenyl)-trichloromethyl methane.

2,421,151 (May 27, 1947; appl. July 16, 1946). RAT GUARD FOR SHIPS' CABLES AND LINES. Roy Lavern Johnstone, San Francisco, and Richard Fielding Downer, Oakland, Calif.

2,421,183 (May 27, 1947; appl. Feb. 12, 1945, in Great Britain July 3, 1944). APPARATUS FOR SPRAYING POWDERS, ATOMIZED LIQUIDS, AND THE LIKE. Courtenay Cakebread, Fortyhill, Enfield, England.

2,421,223 (May 27, 1947; appl. Oct. 5, 1943). STABILIZED INSECTICIDE. Herschel G. Smith, Wallingford, and Mark L. Hill, Yeadon, Pa. Gulf Oil Corporation, Pittsburgh, Pa. The patentees claim the improved light-stable insecticide compositions comprising a pyrethrum extract in a hydrocarbon solvent containing from 0.001 to 1.0 per cent by weight of 2,4,6-tritertiarybutyl phenol, the amount of said tri-alkylated phenol being sufficient to stabilize the pyrethrin-containing insecticides against deterioation by light and air and to inhibit loss of insect killing efficiency when exposed to light and air.

— Calendar of Meetings —

American Chemical Society (New York City Meeting), September 15 to 19, Hotel Pennsylvania. Symposium on Insecticides in Food Production, (Dr. R. C. Roark presiding), Wednesday, Sept. 17, morning and afternoon sessions, Manhattan room.

National Sanitary Supply Association will hold a central regional meeting at the Fort Shelby hotel in Detroit, Mich., September 11-12.

NPCA Convention - October 27, to 29, 1947, Bellevue Stratford Hotel, Philadelphia, Pa.

NAIDM's 34th Annual Meeting at Lord Baltimore Hotel, Baltimore, December 1-3, 1947.

Chemical Industries Exposition, Grand Central Palace, New York, December 1-6, 1947.

American Association of Economic Entomologists (In conjunction with meeting of American Association for Advancement of Science, December 26-31, Congress Hotel, Chicago, Ill.

PLAN NOW TO ATTEND NPCA CONVENTION

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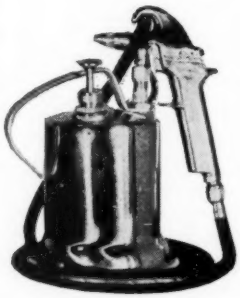

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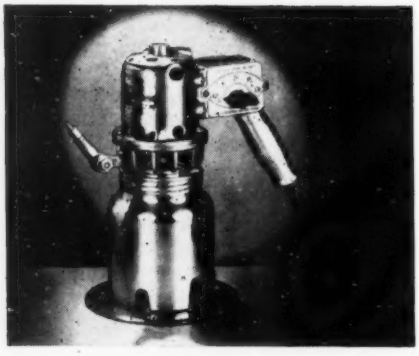

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PYRETHRUM - DERRIS - RED SQUILL PRODUCTS

Leaflet describes foregoing insecticides with special bait chart for use in connection with powdered red squill.

WRITE R. J. PRENTISS & CO., 110 William St., New York City 7, N. Y.

Buildings of Concrete Block Construction May Present Problem For Fumigation —Require Special Procedure

Titles news bulletin which discusses how to meet problems attendant upon fumigation of buildings constructed of concrete block construction. American Cyanamid Co., 30 Rockefeller Plaza, N. Y. 20, N. Y.

FOR THE FOLLOWING PUBLICATIONS
WRITE AMERICAN CYNAMID & CHEMICAL CO., 30 Rockefeller Plaza, N. Y. 20, N. Y.

FUMIGATION SAFETY RULE

Discussed in this fumigation service letter are helpful instructions in connection with the locking of all doors and accessible windows, placing of warning signs thereon and the guarding of premises during fumigation.

10% DDT POWDER GAS MASKS

Some constructive suggestions on the care and maintenance of gas masks are contained in this News Bulletin.

NEW SPOT FUMIGANT

Leaflet describes Acrylon, a new spot or local fumigant. Very effective, it is stated, for use in treating the machinery in flour mills, bakeries and many other places, particularly for the control of Mediterranean flour moth, confused flour beetle, flat grain beetle, cadelle, and similar insects. Not a contact spray, Acrylan, it is further stated, has no deleterious effect on baking qualities of flour and leaves no residual odor.

FIRE IN A BUILDING UNDER FUMIGATION—PROCEDURE

Is the title of an informative bulletin on the subject. Also included are answers to some fumigation questions of interest to every PCO.

FUMIGATION SAFETY RULE
BULLETIN 80.

EFFECT OF HYDROCYANIC ACID ON FOODSTUFFS

REMOVAL OF PHOTOGRAPHIC FILMS AND PAPERS BEFORE FUMIGATION
BULLETIN 88.

EDUCATE THE DOCTOR IN FUMIGATION FIRST AID PROCEDURE

ELECTRIC FANS HAVE SEVERAL USEFUL FUNCTIONS IN FUMIGATION WORK
BULLETIN 84.

DDT FORMULATIONS BULLETIN DISCUSSES
BULLETIN 94.

FUMIGATOR'S FIRST AID KIT
BULLETIN 93.

DEVELOPMENT OF HCN FUMIGATION
BULLETIN 96.

METHYL ORANGE TEST PAPERS
BULLETIN 95.

MECHANICAL MEANS FOR QUICK VENTILATION OF FUMIGATED SPACES
BULLETIN 97.

FOR THE FOLLOWING PUBLICATIONS
WRITE ROHM & HAAS CO., W. Wash. Sq., Philadelphia, Pa.

SYNTHETIC ROACH POWDERS

Research material apropos thiocyanates in powdered form for roach control in place of pyrethrum—describes the development and properties of roach, ant and bedbug powder based on Lethane A-70.

RHothane D3 and DDT IN INSECTICIDAL FORMULATIONS

Presents properties of both RHothane D3 and DDT, together with information regarding the formulation of household and livestock sprays based on RHothane and DDT, or on combinations of these with Lethane 384 and Lethane 384 Special.

Insecticide Formulations for Household Livestoek, Farm and Industry use.

Brochure contains new information which has become available during recent months on DDT and Lethane concentrates, etc.

Rohm & Haas Co. Dept P., Washington Square, Philadelphia 5, Pa.

Phosphorous Paste killing power; baits, combinations, amounts for the control of roaches, mice, rats are discussed.

WRITE JOHN OPITZ, INC., 50-14-39th St., Long nent data on Vorex Rat Bait may be had by writing the company.

Westvaco Chlorine Products Corporation, New York, has issued Technical Bulletin No. 203 covering Hydrogen Bromide Anhydrous and Hydrobromic Acid 48% Aqueous. This eight-page technical bulletin gives properties, composition range, analyses and uses. It also cites many interesting reactions of these products, with particular reference to the indicated applicability of Hydrogen Bromide Anhydrous as a catalyst, bromination, esterification, condensation, alkylation, isomerization, oxidation and addition compound. A copy may be secured from Technical Sales Division, Westvaco Chlorine Products Corporation, 405 Lexington Avenue, New York 17, N. Y.

CHLORDANE LITERATURE

Efforts are being made to publish information and data on Chlordane, the new residual insect toxicant, as soon as practical after field test reports are received, according to Julius Hyman and Company of Denver which has recently released several bulletins.

The Denver company, which manufactures Chlordane under the trade name OCTAKLOR, has immediately available on request:

Technical Supplement No. 204 on the control of roaches and other household and industrial pests.

This publication gives an indication of the general effectiveness of this new chemical in pest control. It is stated that 2 per cent of Chlordane (in proper base) is recommended for residual control of most household, institutional, and industrial insects.

Julius Hyman & Co., Dept. P, Denver, Colorado.

FIRE PROTECTION

Brochure gives instructions for application of the various methods of impregnating with "Checkfyre" fire protection. All absorbent materials, it is stated, can be made non-inflammable by impregnating with this colorless treating solution. Can be used for clothes, textiles, lumber, timber, excelsior, straw, etc. Associated Sales & Supply Co., Dept. P, 5137 Southwest Avenue, St. Louis 10, Mo.

ANT BAIT

Circular describes a jelly ant bait with Thallium Sulphate as its toxic ingredient. Sample tube on request.

WRITE LETHELIN PRODUCTS CO., Mount Vernon, N. Y.

WHAT TO DO ABOUT TERMITES AND LYCTUS BEETLES

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Write A. D. CHAPMAN & CO., Inc., 333 N. Michigan Ave., Chicago 1, Ill. Ask for bulletin 45-T.

PIGEON-PROOFING

Folder describes pigeon-proofing invention which manufacturer claims will completely and decisively eliminate the pigeon nuisance.

WRITE STANLEY'S ROOFING & BLDG. SERVICE, INC., 523 W. 184th St., N. Y. C.

A 115 page DDT Bibliography, giving formula, rate, method of application on household insects and agricultural purpose.

Write J. T. BAKER CHEMICAL CO., Phillipsburg, New Jersey.

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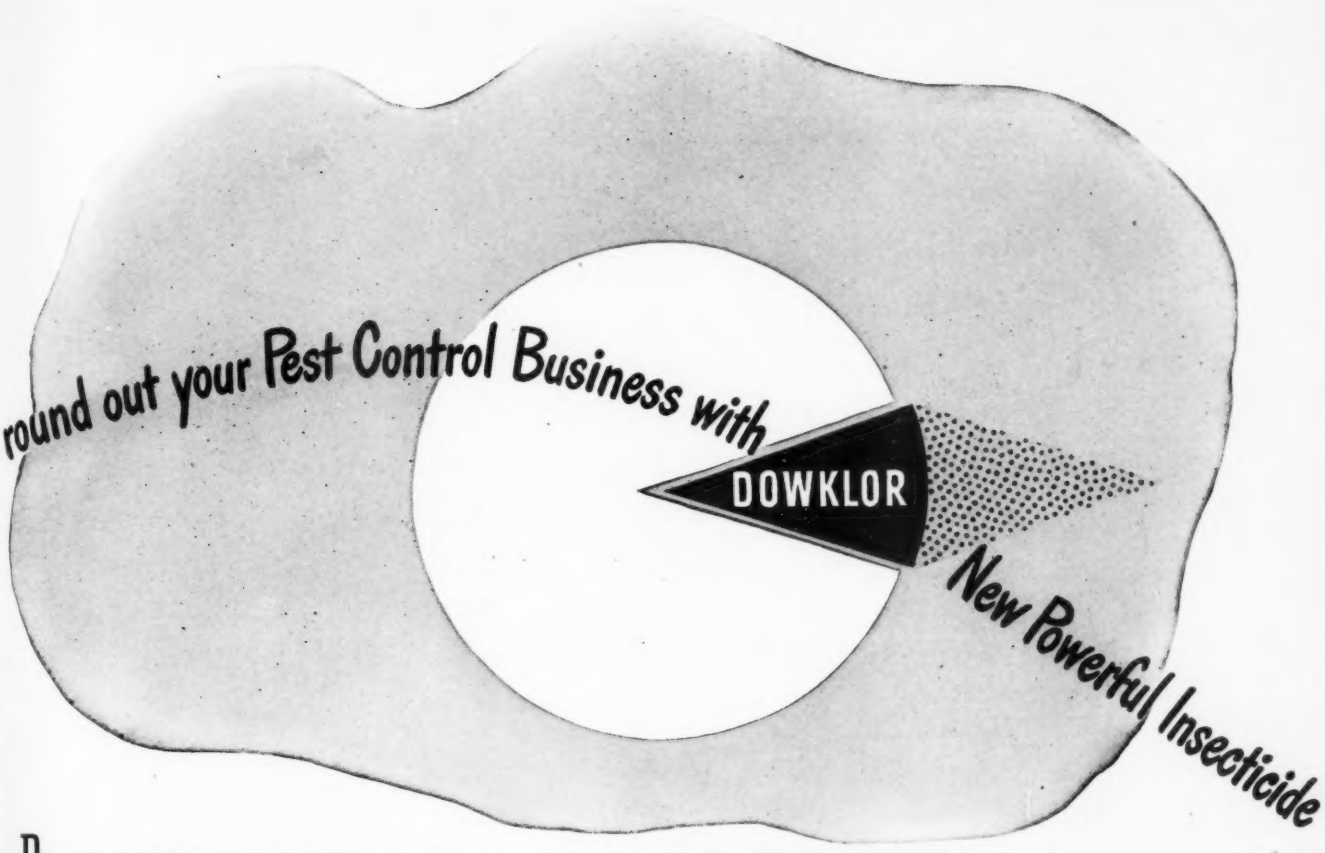

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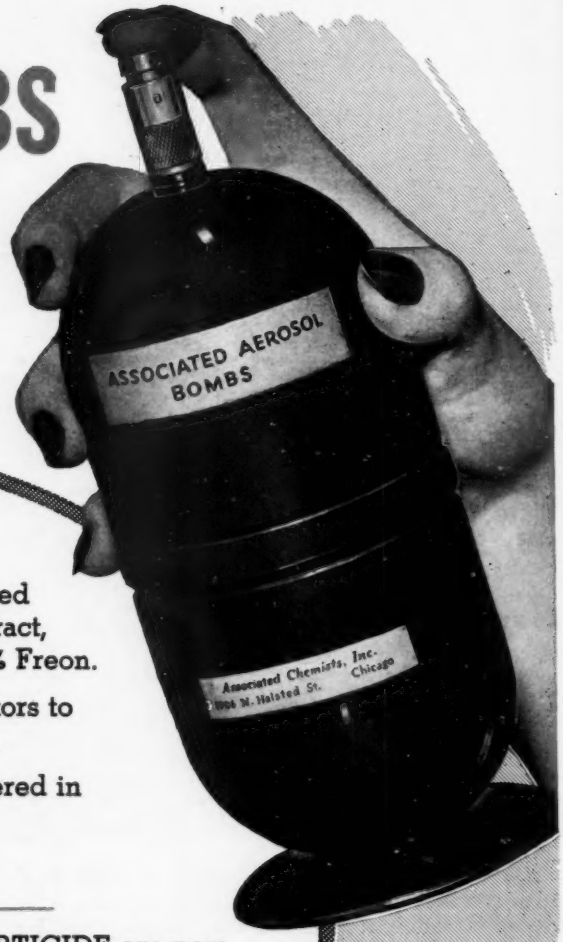

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